

DOCUMENT RESUME

ED 102 122

SP 008 903

AUTHOR Singer, Robert N., Ed.; Weiss, Raymond A., Ed.
TITLE Completed Research in Health, Physical Education, and Recreation including International Sources. Volume 16, 1974 Edition.
INSTITUTION American Alliance for Health, Physical Education, and Recreation, Washington, D.C.
PUB DATE 74
NOTE 183p.
AVAILABLE FROM American Alliance for Health, Physical Education, and Recreation, 1201 16th Street, N. W., Washington, D. C. 20036 (Stock No. 248-25686; 1-9 copies, \$8.95 ea., discounts on larger quantities)
EDRS PRICE MF-\$0.76 HC Not Available from EDRS. PLUS POSTAGE
DESCRIPTORS *Abstracts; Bibliographies; Doctoral Theses; *Health; Masters Theses; *Physical Education; *Recreation; Research; *Research Reviews (Publications)

ABSTRACT

This three-part document is a compilation of research studies completed in health, physical education, recreation, and allied areas during 1973. Part 1 consists of an index, which cross references the listings in parts 2 and 3. Part 2 is a bibliography that lists published research and cites articles published in the 177 periodicals reviewed by the Committee for Completed Research. Part 3 presents abstracts of master's and doctor's theses from 74 institutions offering graduate programs in health, physical education, recreation, and allied areas. The entries are numbered in alphabetical order according to institution. A list of the periodicals reviewed and the reporting institutions concludes the document. (PB)

COMPLETED RESEARCH

in Health, Physical Education, and Recreation

including international sources

Volume 16 1974 Edition

covering research completed in 1973

**Edited by ROBERT N. SINGER and RAYMOND A. WEISS
for the RESEARCH COUNCIL of the AMERICAN ALLIANCE
FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION**

**U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION**

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

PERMISSION TO REPRODUCE THIS
COPYRIGHTED MATERIAL BY MICRO
FILM ONLY HAS BEEN GRANTED BY

AAHPER

TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER.



Copyright © 1974 by

**AMERICAN ALLIANCE FOR HEALTH,
PHYSICAL EDUCATION, AND RECREATION**

**A National Affiliate of the National Education Association
1201 Sixteenth Street, N.W., Washington, D.C. 20036**

Stock No. 248-25686 — Price \$8.95

**AAHPER discounts: Single copy orders, no discount; 10 or more, 10%
Order from: AAHPER Publications Sales, 1201 16th St., N.W.
Washington, D.C. 20036**

**COMMITTEE ON COMPLETED RESEARCH
IN HEALTH, PHYSICAL EDUCATION AND RECREATION
1974-1975**

Helen M. Eckert
Department of Physical Education
Division for Women
University of California
Berkeley, California 94720

Peter W. Everett
Physical Education Program
Tully Gymnasium
Florida State University
Tallahassee, Florida 32306

Barry L. Johnson
Division of Health and
Physical Education
Texas A&I University
P.O. Box 6010
Corpus Christi, Texas 78411

Gerald S. Kenyon
Faculty of Human Kinetics and
Leisure Studies
University of Waterloo
Waterloo, Ontario, Canada N2L 3G1

Lloyd L. Laubach
Webb Associates
P.O. Box 308
Yellow Springs, Ohio 45387

Kenneth D. Miller
Physical Education Program
Tully Gymnasium
Florida State University
Tallahassee, Florida 32306

Emery W. Seymour
Springfield College
Springfield, Massachusetts 01109

**Jerry R. Thomas (Co-chairman for
Thesis Abstracts)**
Movement Sciences Program
Montgomery Gymnasium
Florida State University
Tallahassee, Florida 32306

Celeste Ulrich
Department of Health, Physical
Education and Recreation
for Women
University of North Carolina
Greensboro, North Carolina 27412

Raymond A. Weiss
(Co-chairman for Bibliography)
Room 675, Education Building
Department of Physical Education
New York University
New York, New York 10003

DEDICATED to the International Council on Health, Physical Education, and Recreation by its United States member the American Alliance for Health, Physical Education, and Recreation, to share this compilation with other member organizations of ICHPER and thus to extend knowledge in these fields. This annual volume is published in keeping with ICHPER's objective of exchanging research among professional workers throughout the world and furthering advancement in health education, physical education, and recreation.

CONTENTS

COMMITTEE MEMBERS	v
INTRODUCTION	xi
PART I — INDEX	i
PART II — BIBLIOGRAPHY	9
PART III — THESES ABSTRACTS	39
PERIODICALS REVIEWED	171
INSTITUTIONS REPORTING	173

INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation and allied areas during 1973. It is arranged in three parts.

I. Index. In this section, cross references are given for all the listings in Part II and III. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.

II. Bibliography. This is a listing of published research, citing articles published in the 177 periodicals reviewed by the Committee for *Completed Research*. The periodicals reviewed are listed on pages 171 through 172.

III. Theses Abstracts. These are master's and doctor's theses from 74 institutions offering graduate programs in health, physical education, recreation, and allied areas. Institutions reporting are listed on pages 173 and 175. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution; major professors are in parentheses after each reference.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1974 for inclusion in the next issue of *Completed Research*. Material should be sent to Jerry R. Thomas, Chairman for Theses Abstracts.

Robert N. Singer
Florida State University
Raymond A. Weiss
New York University
Co-Chairmen
Committee on Completed Research

PART I—INDEX

This index enables the reader to refer to the items of completed research listed in Parts II and III. Research topics are arranged in alphabetical order. The reference numbers following each topic correspond to the listings of completed research dealing with that topic. The capital letter B indicates a reference to be found in the Bibliography (Part II); the capital letter T indicates a reference to be found in the Theses Abstracts (Part III).

A

Abortion: B 26, 122, 269, 777; T 36, 43
 Academic achievement: B 99, 129, 173
 Accelerometry: B 291, 619
 Accidents: B 485, 795, T 33, 358
 Acclimatization:
 to altitude: B 295
 to cold: B 128, 334, 657, 760
 to heat: B 183, 640, 759
 Achievement: B 656
 Activity: B 16, 72, 799
 preference: B 213, 564, T 287
 physical: T 563
 Activity, physical and aging: T 76,
 and bone: T 756
 Adapted physical education: B 672
 Administration: T 71, 76, 572
 Administrators: T 210, 251, 431, 643
 Adolescents: B 223, 367, 503, 771
 Age: B 109
 and body composition: B 277, 278, 433
 and exercise: B 471
 and health: B 104
 and motor performance: B 148, 160
 and physical fitness: B 22, 84, 581
 and reaction time: B 85
 and smoking: B 83
 Age differences: B 27, 526
 Aggressiveness: B 300, 554, 627, 733
 Aging: B 104, 312, 369, 581, 705, 725
 Air pollution: B 599
 Alcohol: B 343, 510
 and driving: B 699
 and perception: B 619
 and physical performance: B 67, 187
 and response time: B 508, 744
 Alcohol consumption: B 93, 591
 Alcoholism: B 95, 223
 Allergies: B 441, 676
 Altitude: B 720
 and aerobic metabolism: B 295, 760
 and blood pressure: B 334, 760
 and heart rate: B 291, 760
 metabolism at: B 242, 295
 and physiological response: B 120, 409, 673
 Ambulation: T 746
 Amputees: B 498
 Analysis: B 177, 643
 Anemia: B 214, 491, 621
 Animals, laboratory:
 mice: T 24
 pigs: T 140

 rats: T 16, 18, 123, 587
 Ankle: B 242; T 345
 Anthropometry: B 98, 204, 218, 339, 358, 433,
 434, 689, 713
 Anxiety: B 53, 91, 345, 610; T 26, 111
 Archery: T 318, 387, 620
 Arm: B 632, 689
 Arthritis: B 118, 158, 250, 310, 539, 576, 634,
 669, 678, 800
 Athletes: B 299, 527
 body fat of: B 51, 218
 cardiac output of: B 688
 characteristics of: T 526, 609
 financial aid: T 373, 474
 personality, and: T 473, 570, 696
 Athletics:
 administration: T 662
 coaching: T 261, 534, 550, 664, 670, 673
 competition: T 260, 457
 director: T 303, 661
 finances: T 197
 Athletic achievement: B 173, 528
 Athletic competition: B 359
 Athletic injuries: B 243, 329, 348, 523, 620
 Athletic participation: B 99
 Athletic performance: B 612
 Athletic training: B 299
 Attitude(s): B 314, 424, 644, 758
 toward athletic competition: B 6
 toward exercise: B 668
 toward integration: B 294
 toward leisure activity: B 349
 Auditorially handicapped: B 117

B

Backpacking: B 758
 Badminton: T 194, 381
 Balance, dynamic: B 452, 706; T 579
 Balance, Static: B 516
 Baseball: T 28, 168, 487
 Basketball: B 652; T 141, 384, 404, 428, 745
 Bed rest: B 291
 Behavior: B 228, 560, 743; T 110, 116, 132, 468,
 771
 Bicycle ergometry: B 66, 168, 260, 318, 370, 374,
 375, 474, 531, 708; T 560
 Bicycle riding: B 154, 365, 757, 793
 Biochemistry: B 322, 460
 Biomechanics: B 125, 391, 445, 609, 658, 746;
 T 203, 204, 229, 231, 234, 277, 361, 522,
 524, 559, 649
 Blindness: B 390

2 COMPLETED RESEARCH FOR 1974

Blood: B 78, 413, 775
 Blood chemistry: B 128, 526
 effects of exercise on: B 9, 25
 Blood composition: B 14, 35
 Blood flow: B 107, 622, 624, 653
 effects of exercise on: B 203
 effects of oxygen consumption on: T 591
 Blood lactate: T 430
 Blood pressure: B 49, 109
 effects of exercise on: B 447
 Blood volume: B 115
 Body build: B 51, 160, 176, 336, 358, 364, 640, 681
 Body composition: B 76, 172, 527, T 105, 142, 264, 320, 409, 605, 606
 Body fat: B 51, 218, 501
 Body fluid: B 614
 Body image: B 552, 586, 786; T 95
 Body positioning: B 56, 181
 Body weight: B 216, 262
 Bone growth: B 252
 Bowerman, William J.: T 513
 Bowling: T 663
 Brain: B 244
 Breathing: B 143, 332, 354, 477

C

Camping: B 710
 Cancer: B 479, 501, 591, 764; T 285
 Carbon dioxide: B 106
 Cardiac function: B 500
 Cardiac output: B 236, 238
 effects of exercise on: B 71, 151
 Cardiac rhythm: B 468, 602
 Cardiorespiratory adaptation: T 344, 485
 response: T 177, 677
 Cardiorespiratory fitness: B 117, 402
 Cardiorespiratory function: B 17
 Cardiorespiratory performance: B 529
 Cardiorespiratory response: B 231, 320, 361, 404
 Cardiovascular condition: B 37, 94, 782
 response: T 272, 363, 469, 545, 571, 575, 706, 743
 variables: B 478
 Cardiovascular function: B 70, 295
 Cardiovascular response: B 71, 779
 Cardiovascular stress: B 137
 Cartilage: B 460
 Catching: T 224, 236
 Cerebral palsy: T 247
 Children: B 7, 273, 285, 380, 537, 607, 763; T 721
 disadvantaged: B 129
 elementary school: B 147, 149, 228, 425, 589, 656, 743; T 573
 growth of: B 63, 64, 86, 87, 88, 157, 377, 443, 461, 558
 hyperkinetic: T 533
 motor development of: B 214

Children (and creativity): T 157, 282, 422
 Cholesterol: B 518, 698, 766
 Cholesterol serum: B 768
 Cinematography: T 96, 154, 179, 226, 304, 316, 400, 462, 504, 589
 Circadian rhythm: B 190, 559
 Climate: B 761
 Coaches: B 6, 603
 Coaching: T 254, 301, 427, 739
 Cohesion: T 249, 256
 Cold: B 657, 760
 application of: T 604
 effects of: B 41, 464, 642; T 604
 Communication handicapped: B 77
 Community health: B 45, 193, 194, 555
 Competition: B 227, 313
 Computer techniques: B 333; T 31, 502
 Conservation: B 427
 Contraception: B 49, 122, 180, 269, 413, 450, 478, 568, 732; T 286
 Culture, effect of: B 336
 Curriculum: B 144, 770
 physical education: T 593

D

Dance: T 65, 66, 202, 294, 376, 385, 388, 391, 396, 397, 398, 418, 730, 737
 folk: T 395, 650
 modern: T 399, 403
 Decompression illness: B 78
 Delinquency: B 410, 439
 Dental health: B 282
 Development: B 583, 635
 Dexterity: B 42
 Diabetes: B 562
 Diet: B 57, 560
 and drugs: B 549
 and exercise: B 361; T 278, 765
 effects of: B 150, 600, 698, 747, 766; T 565
 and heart diseases: B 65, 323, 532
 Disability: B 644
 Disease: B 174, 727, 764
 cardiovascular: B 133, 271, 588, 648
 communicable: B 594
 venereal: B 381
 Distance runner: T 104, 180
 Diving: B 334; T 309
 scuba: T 269
 Dominance: B 380, 607
 Driver education: T 46, 109, 607
 Driving: B 514, 699; T 599
 Drugs:
 attitude toward: T 705
 and diet: T 288
 effects of: B 48, 58, 186, 323, 329, 419, 441, 539, 695, 722, 734, 794, 800
 knowledge of: T 147, 549
 and physical performance: B 647, 776; T 334, 727
 self-concept: T 37

Drug abuse: B 225, 367, 438
 Drug addiction: B 429
 treatment of: B 574, 798
 Drug practices: B 695
 Drug usage: B 93, 96, 101, 225, 414, 535, 684

E

Eating, and physical performance: T 5
 Ecology: T 101
 Effort: B 111
 Electrocardiography: B 19, 20, 38, 161, 171, 235, 438
 Electroencephalography: B 561
 Electrogoniometry: B 33, T 310
 Electromyography: B 33, 108, 113, 121, 328, 357, 505, 551, 609, 629, 683, T 125, 219, 339, 416, 733, 773
 Emotionally disturbed: B 551
 Endocrine function: B 292, 529
 Endurance: B 259, 260, T 195, 371
 cardiovascular: B 370, 680, 775, T 465
 isometric: B 73, 540
 isotonic: B 179
 muscular: B 198, 631, 632
 swimming: T 596
 training: B 471
 Environment: B 23, 86, 87, 88, 169, 185, 267, 344, 461, 558, 600, 783
 and work capacity: B 675, 745
 Epidemiology: B 82, 307, 429, 545
 Equipment: B 33
 playground: B 542
 protective: T 700
 Ergogenic aids: B 647, T 588, 590
 Ergometry: B 66, 262, 404
 Esslinger, Arthur A.: T 503
 Ethnic differences: B 172, 465, 617, 644
 and physical fitness: T 719
 Exercise: B 57, 308, 315
 and alcohol: B 448
 and diffusing capacity: B 570
 and drugs: B 354
 isometric: B 137, 138, 411, 419, 437, 442, T 441
 isokinetic: T 89, 230, 515
 isotonic: B 138, 411, 437
 reaction time: T 8
 recovery from: B 36, 150, 297, 362, 379, 749, 787
 and respiration: B 350, 762
 resistive: T 48, 134
 response to: B 9, 38, 263, 296, 346, 614
 stress: B 19, 142, 368
 tolerance: B 19, 20, 142, 169, 783
 Exercise, effects of:
 on anaerobic function: B 184, 222
 on aerobic function: B 341, 400
 on altitude: B 668
 on blood chemistry: B 25, 322, 572, T 283

 on blood flow: B 622
 on body composition: T 488
 on body temperature: B 290, T 749
 on cardiac function: B 47, 138, 188, 368, 468, 506, 613, T 438
 on cardiopulmonary function: B 236, 361, 491
 on cardiomuscular function: B 27, 37, 94, 171, 203, 369, 437, 680
 on circulation: B 258, 447
 on coronary patients: B 159, 319, 378
 on excretion: T 133, 139
 on health: B 711
 on metabolism: B 202, 453, 497, 562, 606
 on muscle: B 497, T 158
 on physical fitness: T 729
 on physiological function: B 2, 104, 128, 170, 191, 264, 265, 406, 504, 598, 687, 749, 751, T 167, 564
 on psychological function: B 286, 520, 521, 654
 on pulmonary function: B 332
 on reaction time: B 411
 on renal capacity: B 611
 on tissue chemistry: B 30, 495, T 750
 on weight: B 571
 on work capacity: B 254
 Exergonic: T 330
 Extracurricular activities: T 324

F

Factor analysis: B 487
 Fasting: B 8, 189
 Fatigue: B 121, 168, 411, 516, 536, T 408
 effect of: T 365
 relief of: B 707
 and work capacity: B 179, 251
 Feedback: B 3, 219, 300, 387, 490, 519, 663, T 118, 378, 443, 496, 512, 578, 708, 722, 758
 Fencing: B 385, T 626
 Flexibility: B 31, 781, T 20
 Food: B 481
 contamination: B 545
 preparation: B 347
 Foot, care of: B 247
 Football: B 140, 496
 and heatstroke: B 739
 psychology: T 92
 Football players, somatotypes of: T 331
 Force: B 337, 524, 525
 Force platform: B 407, 505
 Fluorides: B 515

G

Game strategy: T 636, 735
 Geriatrics: B 2, 22, 217, 276, 392, 552, 633, 675, 738, 783, T 137, 492, 521, 556
 Glandular function: B 766
 Golf: B 152, 513, 643, T 351, 548
 Graduate (profiles): T 213, 221, 484

4 COMPLETED RESEARCH FOR 1974

Graduate study: T 207, 433, 734
 Group dynamics: B 195, 735
 Growth: B 30, 216, 377, 418, 469, T 163
 and exercise: B 583
 Growth curve: B 63, 64, 74, 157, 252, 459, 461
 Growth hormone: B 296, 426, 596, 597, 636
 Gymnastics: B 612
 women: T 174, 175, 176, 212, 244

H

Hand: B 234; T 567
 Handball: T 185, 489, 654
 Handicaps: B 384, 459
 Hart, Charles J.: T 601
 Health, attitudes: T 499, 710
 Health, behavior: T 41
 Health care: B 45, 403, T 40
 Health, education: B 165, 175, 770, T 148, 222, 442, 450, 542, 683, 624
 evaluation of: T 39
 Health environment: B 185; T 44, 641
 Health, of infants: B 403
 Health, knowledge: T 199, 200, 232, 377, 500, 671, 679
 Health, misconceptions: T 121, 493
 Health, observations: T 32, 201, 205, 208, 544
 Health practices: T 629
 Health professions: T 143
 Health, services: B 82, 126; T 91
 Hearing: B 178, 489
 Heart:
 and exercise: B 422
 size of: B 245
 Heart action: B 255, 693, 722
 and exercise: T 194
 Heart disease: B 159, 413, 457, 648, 789, 796
 detection of: B 224, 368, 588, 662, 768
 and diet: B 65
 and drugs: B 684
 and exercise: B 137, 161, 287, 288, 304, 318, 319, 506, 593, 711, 712; T 38
 ischemic: B 38, 188, 304
 knowledge of: T 183
 and rehabilitation: B 422
 and weight: B 271
 Heart rate: B 72, 89, 100, 308, 340, 585, 625, 745, 775
 and age: B 633
 and coaching: T 642
 effects of exercise on: B 105, 456, 538; T 652
 and recovery: B 41
 and stress: B 616
 Heat: T 672
 acclimatization to: B 639
 stress of: B 140, 305, 395, 739
 tolerance to: B 50, 436, 642, 742
 Heat stroke: B 630
 Heat tolerance:
 and exercise in women: T 535

Hemiplegia: B 346, 544
 Hemodynamics, effects of exercise on: B 69
 Heredity: B 102, 393, 394, 405, 774
 Heron: B 429
 History: T 454, 585, 592, 618, 640, 762
 History, associations of: T 51, 54, 299, 315, 471, 495, 497
 History:
 of baseball: T 57
 of football: T 49
 of gymnastics: T 335
 of institutions: T 13, 50, 60, 62, 63, 99, 119, 372, 437, 453, 612, 646, 666, 692
 of surfing: T 639
 of weightlifting: T 720
 Hockey, ice: T 297
 Hormones: B 18, 170, 687
 Hyperbaric air: B 221, 550
 effects of: B 226, 353
 Hyperoxia: B 550
 Hypertension: B 13, 186, 224, 282, 342, 395, 419, 435, 484, 532, 676, 692, 697
 Hypertrophy: B 245, 322
 Hypnosis: B 326; T 699
 Hypoxia: B 44, 89, 178, 233, 258, 388, 529, 546, 702, 712

I

Immunization: B 124, 470, 615
 Inactivity: B 79, 190
 Infant health: B 126
 Infectious hepatitis: B 470, 545
 Influenza: B 594
 Inhibition, proactive: B 510
 Injuries: B 92, 154, 485
 ankle: B 242
 athletic: T 741
 head: B 383
 joint: B 620
 knee: B 243; T 184, 483
 muscle: B 348
 wrestling: T 711
 Intelligence: B 148, 380; T 130
 and perceptual-motor ability: B 589; T 709
 Interval training: B 17, 222, 254, 661, 782
 Intramurals: B 182; T 103, 155, 156, 159, 162, 197, 214, 338, 341, 374, 658, 682, 688

J

Jeffrey, Bill: T 538
 Jogging: B 76, 659; T 10, 616
 Joint: B 125, 750
 Jump, broad: B 567

K

Karate: B 616
 Kicking: T 59

Kinesiology: B 513, 567
 Kinesthesia: B 219, 360, 494, 524, 525, T 343
 Knee: B 240, 243, 250, 634, 649, 658, 750

L

Laboratory animals
 frog: B 46, 220
 mice: B 563
 pig: B 212
 rats: B 72, 456, 501, 547, 571, 602
 Lacrosse: T 306, 382
 Leadership: T 659, 665
 Learning: B 127, 473, 637
 cognitive: B 551
 effects of fatigue on: T 562
 efficiency of: B 345, 467, 508, 705
 motor skill: T 72, 171, 613
 Learning task: B 234
 Leg: B 125
 Legislation: B 40; T 576, 644
 Leisure, activity: B 506, 679; T 228
 Leisure, and age: T 209
 Leisure (attitude): T 164
 Leisure behavior: B 701
 Leisure, and sports: T 210
 Lewitzky, Bella: T 65
 Ligaments: B 750
 Lipemia: T 161
 Literature (movement): T 723
 Lower back: T 759

M

Marijuana: B 101, 327, 367, 414, 426, 734
 Mathematical models: B 541
 Maturation: B 88
 Maturity: B 580
 McCoy, Ernest B.: T 530
 Measles: B 615
 Measurement
 aerobic capacity: B 139, 366
 anthropometric: B 87, 134, 169, 373, 376, 461, 738
 anxiety: B 91
 attitude: B 294, 314, 408, 410, 682
 cardiac output: B 52, 97
 cardiorespiratory: B 19
 cardiovascular: B 255
 circulatory-respiratory: B 142
 endurance: B 376, 440
 of health education: T 38
 hearing: B 77
 knowledge: T 138
 mental health: B 397
 metabolism: B 106
 motor ability: B 384, 487, 530
 oxygen consumption: B 235, 444, 685, 708, 737, 748, 778
 perception: B 56, 181, 655
 perceptual-motor: B 299

 personality: B 1, 176, 205, 398, 584, 717
 physiological: B 263, 569
 psychological: B 580
 pulmonary function: B 98, 301, 543, 755
 pulse rate: B 475
 sensorimotor: B 59
 skill: B 152
 skinfold: B 473
 strength: B 376
 stress: B 318, 368, 662
 visual perception: B 718
 Measurement procedures: B 321, 324, 690, 769
 reliability: B 59, 248, 408, 704
 test construction: B 1, 43, 162, 451, 475, 553, 584
 validity: B 396, 397, 398
 Mechanical analysis: B 241, 502, 567, 797; T 94, 98, 392, 454, 541, 636, 724, 725, 732, 767
 Mechanical principles: B 793
 Memory: B 92, 221
 Memory, short term: B 28, 316, 416, 454, 466, 637, 677, 767; T 74, 136
 Menarche: B 458
 Menstruation: B 192, 559, 759, 795
 Mental ability: B 92, 454, 705
 Mental health: B 32, 35, 193, 194, 284, 389, 576, 617, 736
 Mental performance: B 42, 168
 Mental practice: B 557
 Mental retardates: T 314
 Mentally retarded: B 127, 248, 309, 470, 646, 786, T 188
 Metabolism: B 295, 305, 517, 625, 653, 725, 747, 749; T 456
 aerobic: T 122, 577
 anaerobic: T 346, 455
 effects of exercise on: B 202, 605
 fats: B 8
 protein: B 792
 Metheny, Eleanor: T 78
 Morality: B 289, 330
 Mortality: B 126
 Motion sickness: B 132
 Motivation: B 101, 382, 476; T 280, 327
 Motor ability: T 412
 Motor development: T 755
 Motor learning: B 85, 148, 257, 387, 430, 466, 519, 604, 651, 663, 765
 Motor performance: B 3, 42, 123, 256, 261, 267, 313, 340, 417, 430, 487, 513, 536, 604, 637, 651, 744, 765, 767, 772, 774; T 107, 510, 716
 Motor response: B 80, 415, 524, 525, 677, 773
 Motor skill: B 219, 256, 629
 mental practice of: B 557
 training in: B 39, 127, 341, 544, 646; T 235
 Motor tasks: B 55
 performance of: B 367, 483, 763
 Motor units: B 493
 Movement: B 200; T 25, 67, 191, 243, 674
 of joints: B 499, 700

6 COMPLETED RESEARCH FOR 1974

measurement of: T 211
 Movement patterns: B 149, 234, 706
 Movement time: B 11, 131, 280, 283
 Muscle, arm: B 113
 Muscles, effects of exercise on: B 471
 Muscle activity: B 15, 177, 316, 357, 486, 501, 741; T 669
 Muscle chemistry: B 14, 57, 79, 220, 264, 265, 299, 331, 696, 722; T 279
 Muscle contraction: B 18, 107, 432, 538, 577, 728
 isometric: B 110, 111, 114, 251, 316, 493, 622, 709
 isotonic: B 709
 Muscle force: B 780
 Muscle function: B 693, 702
 Muscle soreness: B 709
 Muscle spasm: B 119
 Muscle stimulation: B 15, 449
 Muscle stretching: B 266, 780
 Muscle tension: B 266
 Muscular work: B 191, 683, 686, 728, 745
 Myocardium: B 69

N

Negroes: B 723
 Nerves, motor: B 215, 420, 449, 785
 Neurologically impaired: B 565
 Neurology (nerve compression block): T 751
 Neuromuscular system: B 123, 405, 565; T 22
 Neurophysiology: B 253
 Noise: B 303, 667
 Nurses, school: T 64
 Nutrition: B 4, 16, 86, 87, 88, 515
 effects of: B 147, 199, 566, 600, 761
 knowledge of: B 481
 physical fitness: B 761
 proteins in: B 344
 Nutritional status: B 226, 285

O

Obesity: B 12, 70, 517, 518, 560, 605
 and fasting: B 189
 and physical activity: B 16, 297
 and psychological factors: B 277, 278
 and pulmonary function: B 201, 271
 treatment of: B 586
 Occupational health: B 230
 Occupations: B 446, 603, 628; T 547
 Olympic games: B 155; T 697
 Operant conditioning: B 490, 547
 Organic functions: B 730
 Orthopaedic handicap: T 47
 Outdoor education: T 225, 520, 532, 638
 Oxygen consumption: B 22, 23, 29, 167, 169, 189, 262, 292, 370, 374, 444, 550, 625, 754, 760, 783
 effects of exercise on: B 206, 400, 474, 507, 652; T 2, 181, 292, 424, 611, 632
 maximum: B 259, 371, 372, 527, 593

measurement of: B 325, 372, 685, 737, 748, 778; T 127, 356, 362, 516
 prediction of: B 363, 500; T 717
 Oxygen debt: B 184, 272, 374; T 490
 Oxygen transport: B 570, 784

P

Performance: B 358, 382, 394
 Performance, and noise: B 306, 546
 Performance, and personality: B 100
 Performance, under stress: B 694
 Personality, and athletic achievement: B 5
 Personality, and smoking: B 423, 771
 Physical education: B 578
 Physical education, in elementary grades: B 302
 Physical education, history of: B 40, 533, 534
 Physical education, objectives of: B 270
 Physical education, in secondary grades: B 213
 Physical fitness: B 393, 719, 758
 Physical fitness, and age: B 84, 207
 Physical fitness, attitude toward: B 668
 Physical fitness, and ethnic differences: B 582, 583
 Physical fitness, measurement of: B 207
 Physical fitness, training program: B 402
 Physical fitness, of women: B 335
 Physical training, and heart disease: B 69, 593
 Practice, effects of: B 472
 Practice, of motor skill: B 699
 Practice, sequence of: B 153
 Psychological factors, effects on motor performance: B 313
 Psychological factors, and smoking: B 488
 Pulmonary function, effects of exercise on: B 401, 538
 Pulmonary function, in obesity: B 201
 Pulmonary function, and smoking: B 412, 428

R

Racial factors: B 230, 496
 Reaction time: B 10, 28, 54, 60, 75, 85, 115, 131, 153, 163, 211, 244, 257, 274, 276, 280, 283, 306, 309, 311, 343, 356, 405, 411, 417, 445, 454, 556, 573, 575, 592, 608, 671, 705, 744, 756, 772; T 263, 359, 482, 580, 582
 Reading achievement: B 380
 and perceptual motor performance: B 237, 268, 279, 716
 and motor learning: T 192
 and readiness: T 319, 386
 Recovery: B 707
 Recovery, rates: T 467
 Recreation: B 209, 314, 769, 799
 activities in: B 455, 701
 activity preferences: B 587
 attitude toward: B 130, 635; T 461, 690
 and behavior: T 389, 527, 634, 645
 and community: T 113, 120, 145, 552, 594, 595, 617, 628, 647, 668, 681, 685, 686
 effects of: B 790; T 648

and environment: B 399; T 56, 528, 561
 evaluation of: T 335, 537, 543, 598, 602, 633, 655, 679, 728
 history of: T 600
 planning: T 349
 for retarded: T 615, 726
 therapeutic: T 525, 557, 667
 water-oriented: T 546
Reflex time: B 405
Rehabilitation: B 210, 346, 378, 544, 661, 779
Reinforcement: B 182, 309, 452, 547, 724, 726; T 479
Relaxation: B 123, 246
Research methods: B 333, 690; T 508
Respiration: B 34, 36, 166, 196, 236, 338, 362, 624, 676, 751, 787
 during exercise: B 388
 in immersion: B 480
 and smoking: B 62, 112, 721, 791
Response time: B 11, 257, 291, 303, 667, 767; T 367
Retardation:
 mental: T 150, 336, 608
 trainable: T 429, 523, 536, 551
Rest: B 36, 366
Retention: B 127, 416, 466, 646
Rhythmic ability: B 149, 664
Rhythmic performance: B 234
Risk: B 476
Rowing: B 623
Rubella: B 124
Running: B 641, 737
 distance: B 308
 effects on: T 321
 endurance: B 372
 sprint: T 322
 treadmill: T 196

S

Safety education: T 34, 42
Scuba diving: B 208
Self-assessment: B 424
Self-concept: B 465, 586; T 97, 166, 323, 357, 476, 540, 553, 554, 660, 701, 757
Sex:
 attitude toward: B 103
 knowledge: T 35, 293
Sex behavior: B 674; T 198
Sex differences: B 53, 160, 380, 424, 526, 554, 681; T 505, 574
Sex education: B 144, 180, 503
Shot-put: T 707
Shoulder: B 177
Skeletal growth: B 88, 469
Skeletal muscle: B 30, 46, 79, 212, 220, 238, 348, 492, 722
Skiing:
 snow: B 57, 298, 399, 502, 620; T 614, 637
 water: T 298

Skill learning: B 557; T 352
Skill performance: B 117, 152, 723
Skin: B 351
Skinfold: B 51
Sleep:
 arousal from: B 141, 660
 deprivation of: B 261, 754
 and performance: T 586
Smoking: B 217, 230, 293, 386
 and cancer: B 591
 and children: B 62, 789
 and circulation: B 653
 and heart disease: B 431, 768
 and lungs: B 428
 and morbidity: B 229, 482
 and performance: T 248, 342
 and personality: B 423, 771
 and pulmonary function: B 112, 166, 412, 563, 721, 791
 and respiration: B 62
 and ventilation: B 599
Smoking habits: B 83, 275, 352, 488, 789
Snowmobile: B 399
Soccer: T 311, 312
Social factors: B 68, 488, 511, 595, 603
Social image: B 336
Social learning: T 405
Social mobility: B 446, 703, 788; T 58, 684
Social status: T 19, 88, 170
Socioeconomic factors: B 528, 719
Sociometry: B 715
Softball: B 797
Somatotype: B 116, 176, 590, 618
Spatial relations: B 21, 249; T 329
Specificity vs. generality: B 39; T 15
Spectator, effect of: B 53, 610; T 11, 69, 715
Speed, effects of: T 193
Spine: B 499, 700
Sports:
 hazards of: B 140
 participation in: B 182, 213, 578, 666; T 307
 skill: T 126, 129, 148, 317, 452
 sociology: T 769
Sport development: T 772
Sport sociology: B 195, 317, 564, 601, 665, 666, 703, 735
Sports literature: T 165, 169, 379, 459
Statistical method: B 321, 324, 337, 717; T 252, 518
Steroid: B 678; T 9, 764, 768
Stimulus: B 273
 visual: B 115, 211, 575
Stimulus-response: B 11, 61, 163, 309, 537, 608, 671
Strength: B 7, 758
 arm: T 581
 grip: B 248, 337, 540, 649
 isometric: B 328
 isotonic: B 328
 leg: B 145, 158; T 250
 and performance: B 55, 107

8 COMPLETED RESEARCH FOR 1974

static: B 707, 765
 training: T 347
 Strength training: B 379, 522
 Stress: B 536, 741
 and heart rate: B 585
 performance under: B 691
 physical: B 23, 81, 150, 184, 655
 response to: B 91, 123, 185, 245
 Stroboscopy: B 746
 Sweating: B 197, 338
 Swimming: B 241, 247, 308, 647, 657; T 259, 325,
 350, 369, 407, 583, 680, 687, 689
 competitive: B 146
 effects of: B 146, 280
 under stress: B 507
 weight training: T 55
 Swimming pools: T 237
 Swimming (static torque): T 84, 369

T

Task:
 complexity: B 244, 472; T 337
 duration: B 127, 508
 Teaching: T 21, 52, 79, 80, 81, 106, 218, 368,
 370, 383, 446, 498, 501, 529, 675, 676, 653,
 713
 Teaching methods: B 302
 Teaching specialists: T 375, 656
 Teaching student: T 506, 754
 Team sports: B 182, 195, 735
 Teleranging: B 616
 Temperature:
 ambient: B 34, 140, 239
 body: B 290, 462, 561
 skin: B 41, 464, 541
 Tennis: B 625; T 83, 509, 539
 Test construction: T 451
 Thermal response: B 239, 254, 462, 463, 561, 602,
 686, 745
 Throwing: B 729, 746; T 753
 Time:
 estimation: B 720
 intervals: B 61, 75, 211, 340, 415, 525, 556,
 573, 575, 608, 756
 Track and field: B 359, 753; T 4, 27, 190, 239,
 702, 744
 Traffic safety: B 514; T 215
 Training: B 264, 365, 369
 aerobics: T 93
 effects of: B 55, 208, 212, 442, 581, 613, 631,
 632; T 178, 406
 and endurance: T 410, 436
 Training programs: B 308
 effectiveness of: B 522, 523, 753
 strength: T 750
 Trampoline: T 144
 Trunk:
 strength: B 474, 550, 752
 running: B 272, 793
 walking: B 498, 662, 708
 Trunk: B 752, 781

U

Urine analysis: B 190

V

Vaccines: B 615
 Velocity: T 760
 Velocity, of objects: B 729
 Ventilation:
 in exercise: B 712
 pulmonary: B 143, 196
 regulation of: B 541
 Vision: B 343, 360
 peripheral: T 275
 Visual adaptation: B 156, 164, 249, 279
 Visual perception: B 90, 706, 718; T 12, 77
 Visual task: T 770
 Visual-motor perception: B 136, 645
 Visual-motor skills: B 237, 291, 490
 Visually handicapped: B 117
 Vitamins: B 4, 199, 548
 Volleyball: T 217, 266, 425, 610, 657

W

Walking: B 125, 183, 390, 737, 752
 Warm-up: T 7, 390, 619, 206, 246
 Water:
 hazards of: B 89
 immersion in: B 78, 657
 treatments using: B 320
 Water activities: B 209
 Weight: B 271, 571, 713
 Weight bearing: B 512
 Weight control: B 12, 760; T 115
 Weight lifting: B 105, 143, 407
 Weight loss: B 201, 277, 278, 364, 404; T 1
 Weight training: B 76, 365; T 86, 108, 243, 300
 Wheat germ oil: T 364
 Women: B 345
 athletic competition: T 114, 305, 393, 402, 448,
 472, 631, 740
 attitudes of: T 82, 153, 242, 276, 296, 380, 464,
 514, 517, 519, 718
 endurance of: B 371, 440, 652; T 511, 742
 muscle fatigue: T 290
 and physical activity: B 325; T 435
 physical fitness of: B 231, 371, 475; T 257, 262,
 348
 psychological characteristics: T 555, 558
 training: T 411, 569
 Work:
 aerobic: B 172, 222, 223, 224, 225, 226,
 227, 228, 229, 230, 231, 232, 233,
 234, 235, 236, 237, 238, 239, 240,
 241, 242, 243, 244, 245, 246, 247,
 248, 249, 250, 251, 252, 253, 254,
 255, 256, 257, 258, 259, 260, 261,
 262, 263, 264, 265, 266, 267, 268,
 269, 270, 271, 272, 273, 274, 275,
 276, 277, 278, 279, 280, 281, 282,
 283, 284, 285, 286, 287, 288, 289,
 290, 291, 292, 293, 294, 295, 296,
 297, 298, 299, 300, 301, 302, 303,
 304, 305, 306, 307, 308, 309, 310,
 311, 312, 313, 314, 315, 316, 317,
 318, 319, 320, 321, 322, 323, 324,
 325, 326, 327, 328, 329, 330, 331,
 332, 333, 334, 335, 336, 337, 338,
 339, 340, 341, 342, 343, 344, 345,
 346, 347, 348, 349, 350, 351, 352,
 353, 354, 355, 356, 357, 358, 359,
 360, 361, 362, 363, 364, 365, 366,
 367, 368, 369, 370, 371, 372, 373,
 374, 375, 376, 377, 378, 379, 380,
 381, 382, 383, 384, 385, 386, 387,
 388, 389, 390, 391, 392, 393, 394,
 395, 396, 397, 398, 399, 400, 401,
 402, 403, 404, 405, 406, 407, 408,
 409, 410, 411, 412, 413, 414, 415,
 416, 417, 418, 419, 420, 421, 422,
 423, 424, 425, 426, 427, 428, 429,
 430, 431, 432, 433, 434, 435, 436,
 437, 438, 439, 440, 441, 442, 443,
 444, 445, 446, 447, 448, 449, 450,
 451, 452, 453, 454, 455, 456, 457,
 458, 459, 460, 461, 462, 463, 464,
 465, 466, 467, 468, 469, 470, 471,
 472, 473, 474, 475, 476, 477, 478,
 479, 480, 481, 482, 483, 484, 485,
 486, 487, 488, 489, 490, 491, 492,
 493, 494, 495, 496, 497, 498, 499,
 500, 501, 502, 503, 504, 505, 506,
 507, 508, 509, 510, 511, 512, 513,
 514, 515, 516, 517, 518, 519, 520,
 521, 522, 523, 524, 525, 526, 527,
 528, 529, 530, 531, 532, 533, 534,
 535, 536, 537, 538, 539, 540, 541,
 542, 543, 544, 545, 546, 547, 548,
 549, 550, 551, 552, 553, 554, 555,
 556, 557, 558, 559, 560, 561, 562,
 563, 564, 565, 566, 567, 568, 569,
 570, 571, 572, 573, 574, 575, 576,
 577, 578, 579, 580, 581, 582, 583,
 584, 585, 586, 587, 588, 589, 590,
 591, 592, 593, 594, 595, 596, 597,
 598, 599, 600, 601, 602, 603, 604,
 605, 606, 607, 608, 609, 610, 611,
 612, 613, 614, 615, 616, 617, 618,
 619, 620, 621, 622, 623, 624, 625,
 626, 627, 628, 629, 630, 631, 632,
 633, 634, 635, 636, 637, 638, 639,
 640, 641, 642, 643, 644, 645, 646,
 647, 648, 649, 650, 651, 652, 653,
 654, 655, 656, 657, 658, 659, 660,
 661, 662, 663, 664, 665, 666, 667,
 668, 669, 670, 671, 672, 673, 674,
 675, 676, 677, 678, 679, 680, 681,
 682, 683, 684, 685, 686, 687, 688,
 689, 690, 691, 692, 693, 694, 695,
 696, 697, 698, 699, 700, 701, 702,
 703, 704, 705, 706, 707, 708, 709,
 710, 711, 712, 713, 714, 715, 716,
 717, 718, 719, 720, 721, 722, 723,
 724, 725, 726, 727, 728, 729, 730,
 731, 732, 733, 734, 735, 736, 737,
 738, 739, 740, 741, 742, 743, 744,
 745, 746, 747, 748, 749, 750, 751,
 752, 753, 754, 755, 756, 757, 758,
 759, 760, 761, 762, 763, 764, 765,
 766, 767, 768, 769, 770, 771, 772,
 773, 774, 775, 776, 777, 778, 779,
 780, 781, 782, 783, 784, 785, 786,
 787, 788, 789, 790, 791, 792, 793,
 794, 795, 796, 797, 798, 799, 800,
 801, 802, 803, 804, 805, 806, 807,
 808, 809, 810, 811, 812, 813, 814,
 815, 816, 817, 818, 819, 820, 821,
 822, 823, 824, 825, 826, 827, 828,
 829, 830, 831, 832, 833, 834, 835,
 836, 837, 838, 839, 840, 841, 842,
 843, 844, 845, 846, 847, 848, 849,
 850, 851, 852, 853, 854, 855, 856,
 857, 858, 859, 860, 861, 862, 863,
 864, 865, 866, 867, 868, 869, 870,
 871, 872, 873, 874, 875, 876, 877,
 878, 879, 880, 881, 882, 883, 884,
 885, 886, 887, 888, 889, 890, 891,
 892, 893, 894, 895, 896, 897, 898,
 899, 900, 901, 902, 903, 904, 905,
 906, 907, 908, 909, 910, 911, 912,
 913, 914, 915, 916, 917, 918, 919,
 920, 921, 922, 923, 924, 925, 926,
 927, 928, 929, 930, 931, 932, 933,
 934, 935, 936, 937, 938, 939, 940,
 941, 942, 943, 944, 945, 946, 947,
 948, 949, 950, 951, 952, 953, 954,
 955, 956, 957, 958, 959, 960, 961,
 962, 963, 964, 965, 966, 967, 968,
 969, 970, 971, 972, 973, 974, 975,
 976, 977, 978, 979, 980, 981, 982,
 983, 984, 985, 986, 987, 988, 989,
 990, 991, 992, 993, 994, 995, 996,
 997, 998, 999, 1000

PART II—BIBLIOGRAPHY

1. ABBOTT, Robert D., and HARRIS, Louise. Social desirability and psychometric characteristics of the personal orientation inventory. *Educational and Psychological Measurement* 33:427-32, Summer 1973.
2. ADAMS, Gene M., and DEVRIES, Herbert A. Physiological effects of an exercise training regimen upon women aged 52 to 79. *Journal of Gerontology* 28:50-55, Jan. 1973.
3. ADAMS, J.A., and GOETZ, E.T. Feedback and practice as variables in error detection and correction. *Journal of Motor Behavior* 5:217-24, Dec. 1973.
4. ADAMS, J.F.; McEWAN, Fiona; and WILSON, Alison. The vitamin B-12 content of meals and items of diet. *British Journal of Nutrition* 29:65-72, Jan. 1973.
5. AKERS, James, and HENSCHEN, Keith. A multi-group intersectional personality study. *Proceedings of the National College Physical Education Association for Men* 76:100-06, 1973.
6. ALBINSON, J.G. Professionalized attitudes of volunteer coaches toward playing a game. *International Review of Sport Sociology* 9:77-87, 1973.
7. ALEXANDER, Justin, and MOLNAR, Gabriella. Muscular strength in children: Preliminary report on objective standards. *Archives of Physical Medicine and Rehabilitation* 54:424-27, Sept. 1973.
8. ALLRED, John B., and ROEHRIG, Karla L. Metabolic oscillations and food intake. *Federation Proceedings* 32:1727-30, June 1973.
9. ALTERKRUSE, E.B., and WILMORE, J.H. Changes in blood chemistries following a controlled exercise program. *Journal of Occupational Medicine* 15:110-13, Feb. 1973.
10. ANGEL, A. Input-output relations in simple reaction time experiments. *Quarterly Journal of Experimental Psychology* 25:193-200, May 1973.
11. ANNETT, John, and SHERIDAN, Martin R. Effects of S-R and R-R compatibility on bimanual movement time. *Quarterly Journal of Experimental Psychology* 25:247-52, May 1973.
12. ANTONETTI, V.W. Equations governing weight control in human beings. *American Journal of Clinical Nutrition* 26:64-71, Jan. 1973.
13. AOKI, K.; TAKIKAWA, K.; and HOTTA, K. Role of adrenal cortex and medulla in hypertension. *Nature-New Biology* 241:122-23, Jan. 1973.
14. AOKI, T.T., and others. Blood cell and plasma amino acid levels across forearm muscle during a protein meal. *Diabetes* 22:768-75, Oct. 1973.
15. APPELBERG, B. Muscle spindles in a flexion reflex elicited by natural stimulation. *Acta Physiologica Scandinavica* 89:145-53, Oct. 1973.
16. ARAUJO, Paul E., and MAYER, Jean. Activity increase associated with obesity induced by monosodium glutamate in mice. *American Journal of Physiology* 225:764-65, Oct. 1973.
17. ARDISON, J.L., and others. Cardio-respiratory effects of interval-training. *Journal of Sports Medicine and Physical Fitness* 13:74-89, June 1973.
18. ARIEL, G. The effect of anabolic steroid upon skeletal muscle contractive force. *Journal of Sports Medicine and Physical Fitness* 13:187-90, Sept. 1973.
19. ARONOW, Wilbert S. Thirty-month follow-up of maximal treadmill stress test and double Master's test in normal subjects. *Circulation* 47:287-90, Feb. 1973.
20. ARONOW, Wilbert S. Thirty-month follow-up of resting and post-exercise apexcardiogram in asymptomatic subjects. *Circulation* 47:807-12, April 1973.
21. ASSO, D., and WYKE, M. Verbal description of spatial relations in line drawings by young children. *British Journal of Psychology* 64:233-40, May 1973.
22. ASTRAND, I., and others. Reduction in maximal oxygen uptake with age. *Journal of Applied Physiology* 35:649-54, Nov. 1973.
23. ASTRAND, Irma, and others. Energy output and work stress in coastal fishing. *Scandinavian Journal of Clinical and Laboratory Investigation* 31:105-13, Jan. 1973.
24. AUCK, Steven W. Personality similarity and friendship choice: Similarity of what, when? *Journal of Personality* 41:543-58, Dec. 1973.
25. AUSTIN, P.L., and others. Effect of exercise on red blood cell. *Journal of Pediatrics* 83:41-45, July 1973.
26. AUTHUR, H.R. Termination of pregnancy. *Royal Society of Health Journal* 92:204-06, Aug. 1972.
27. BACHOFEN, H., and others. Alveolar-arterial N_2 gradients at rest and during exercise in healthy men of different ages. *Journal of Applied Physiology* 34:137-42, Feb. 1973.
28. BADDELEY, Alan D., and ECOB, J. Russell. Reaction time and short-term memory: Implications of repetition effects for the high-speed exhaustive scan hypothesis. *Quarterly Journal of Experimental Psychology* 25:229-40, May 1973.
29. BAILEY, D., and others. Oscillations in oxygen consumption of man at rest. *Journal of Applied Physiology* 34:467-70, April 1973.

10 COMPLETED RESEARCH FOR 1974

30. BAILEY, D.A.; BELL, R.D.; and HOWARTH, R.E. The effect of exercise on DNA and protein synthesis in skeletal muscle of growing rats. *Growth* 37:323-31, Dec. 1973.
31. BAIN, B. Toward a theory of perception: Participation as a function of body-flexibility. *Journal of General Psychology* 89:157-296, Oct. 1973.
32. BAKER, E.J. The mental health associate: One year later. *Community Mental Health Journal* 9:203-14, Fall 1973.
33. BALAKRISHNAN, A., and SIMARD, T. A slide rule to correlate electromyographic and electrogoniometric data. *Research Quarterly* 44:375-82, Oct. 1973.
34. BALLDIN, U.I. Effects of ambient temperature and body position on tissue nitrogen elimination in man. *Aerospace Medicine* 44:365-70, April 1973.
35. BARD, Harry. Postnatal fetal and adult hemoglobin synthesis in early preterm newborn infants. *Journal of Clinical Investigation* 52:1789-95, Aug. 1973.
36. BARLETT, H.L., and others. A system for automatic end-tidal gas sampling at rest and during exercise. *Journal of Applied Physiology* 35:301-03, Aug. 1973.
37. BARNARD, R.J., and others. Cardiovascular responses to sudden strenuous exercise-heart rate, blood pressure and ECG. *Journal of Applied Physiology* 34:833-37, June 1973.
38. BARNARD, R.J., and others. Ischemic response to sudden strenuous exercise in healthy men. *Circulation* 48:936-42, Nov. 1973.
39. BARNETT, Mary L., and others. Motor skills learning and the specificity of training principle. *Research Quarterly* 44:440-47, Dec. 1973.
40. BARNEY, Robert K. A historical reinterpretation of the forces underlying the first state legislation for physical education in the public school of the U.S. *Research Quarterly* 44:346-60, Oct. 1973.
41. BARNI, David; MICHAEL, Ernest; and FOOSE, Barry. Effects of cold showers on the heart rate and oxygen uptake of trained runners. *Research Quarterly* 44:12-23, March 1973.
42. BARNESLEY, Roger H., and RABINOVITCH, M. Sam. Handedness and "automation" cognitive style. *Canadian Journal of Psychology* 27 7-15, March 1973.
43. BART, William M., and KRUS, David J. An ordering theoretic method to determine hierarchies among items. *Educational and Psychological Measurement* 33:291-99, Summer 1973.
44. BASON, Robert, and others. Maintenance of physical training effects by intermittent exposure to hypoxia. *Aerospace Medicine* 44:1097-1100, Oct. 1973.
45. BASS, R.D., and WINDLE, C. A preliminary attempt to measure continuity of care in a community mental health center. *Community Mental Health Journal* 9:53-62, Spring 1973.
46. BATRA, Satish. The effect of sodium and potassium on calcium uptake by frog skeletal muscle mitochondria and vesicles. *Canadian Journal of Physiology and Pharmacology* 50:1157-61, Dec. 1972.
47. BEARD, Earl F., and OWEN, Cannon A. Cardiac arrhythmias during exercise testing of healthy men. *Aerospace Medicine* 44:286-89, March 1973.
48. BEAUBRUN, Michael H., and KNIGHT, Frank. Psychiatric assessment of 30 chronic users of cannabis and 30 matched controls. *American Journal of Psychiatry* 130:309-11, March 1973.
49. BECKERHOFF, R., and others. Effects of oral contraceptives on the renin-angiotension system and of blood pressure of normal young women. *Johns Hopkins Medical Journal* 132:80-87, Feb. 1973.
50. BELDING, Harwood S., and KAMON, Eliezer. Evaporative coefficients for prediction of safe limits in prolonged exposures to work under hot conditions. *Federation Proceedings* 32:1598-1601, May 1973.
51. BELL, W. Distribution of skinfolds and differences in body proportions of young adult rugby players. *Journal of Sports Medicine and Physical Fitness* 13:69-73, June 1973.
52. BENCHIMOL, Alberto; DESSER, Kenneth; and GARTLAN, John L. Left ventricular blood flow velocity in man studied with the Doppler ultrasonic flowmeter. *American Heart Journal* 85:294301, March 1973.
53. BENTON, Alan A. Reactions to demands to win from an opposite sex opponent. *Journal of Personality* 41:430-56, Sept. 1973.
54. BERENT, Stanley, and MORRIS, Susan W. Modification of energizing effects of electric shock on a reaction-time task. *Perceptual and Motor Skills* 37:233-34, Aug. 1973.
55. BERGER, Richard A., and COPPEDGE, Norman G. Effects of strength improvement on accuracy in a gross motor task. *American Corrective Therapy Journal* 27(2):57-58, March-April 1973.
56. BERGMAN, Hans, and ENGELBREKTSON, Karin. An examination of factor structure of rod-and-frame test and embedded-figures test. *Perceptual and Motor Skills* 37:939-47, Dec. 1973.
57. BERGSTROM, J.; HULTMAN, E.; and SALTIN, B. Muscle glycogen consumption during cross-country skiing (the Vasa ski race). *Internationale Zeitschrift fur Angewandte Physiologie* 31:71-75, 1973.

58. BERKOWITZ, J.; REICHEL, J.; and SHIM, C. The effect of ethanol on the cough reflex. *Clinical Science and Molecular Medicine* 45:527-31, Oct. 1973.
59. BERMAN, Allan. Reliability of perceptual-motor laterality tests. *Perceptual and Motor Skills* 36:599-605, April 1973.
60. BERNSTEIN, Ira; FUTCH, D.; and SCHURMAN, D. Some exposure duration effects in simple reaction time. *Journal of Experimental Psychology* 97:317-22, March 1973.
61. BERNSTEIN, Ira H., and others. Stimulus intensity and foreperiod effects in intersensory facilitation. *Quarterly Journal of Experimental Psychology* 25:171-81, May 1973.
62. BEWLEY, Bealahr; HALIL, T.; and SNAITH, A.H. Smoking by primary schoolchildren: Prevalence and associated respiratory symptoms. *British Journal of Preventive and Social Medicine* 27:150-53, Aug. 1973.
63. BHARGAVA, V., and others. Growth patterns in babies of extreme low birth weight. *Indian Journal of Medical Research* 60:1492-97, Oct. 1972.
64. BIALIK, Ora; PERITZ, Eric; and ARNON, Amos. Weight growth in infancy: A regression analysis. *Human Biology* 45:81-93, Feb. 1973.
65. BIERENBAUM, Marvin L., and others. Ten-year experience of modified-fat diets on younger men with coronary heart-disease. *Lancet* 1:1404-07, June 1973.
66. BIGLAND-RITCHIE, B., and others. A variable-speed motorized bicycle ergometer for positive and negative work exercise. *Journal of Applied Physiology* 35:739-40, Nov. 1973.
67. BILLINGS, L.E., and others. Effects of ethyl alcohol on pilot performance. *Aerospace Medicine* 44:379-82, April 1973.
68. BIRD, Anne M. Effects of social facilitation upon females' performance of two psychomotor tasks. *Research Quarterly* 44:322-30, Oct. 1973.
69. BJERNULF, Arne. Haemodynamic effects of physical training after myocardial infarction. *Acta Medica Scandinavica, Supplementum* 548:5-36, 1973.
70. BLACKMAN, L.; FREYSCHUSS, U.; HALLBERG, D.; and MELCHER, A. Cardiovascular function in extreme obesity. *Acta Medica Scandinavica* 193:437-46, May 1973.
71. BLANCHARD, Edward B., and YOUNG, Larry D. Self-control of cardiac functioning: A promise as yet unfulfilled. *Psychological Bulletin* 79:145-63, March 1973.
72. BLEVINGS, George J. Relations of heart rate level to motor activity and food deprivation in the rat. *Canadian Journal of Psychology* 27:381-90, Dec. 1973.
73. BLOSWICK, Donald S., and McNICHOLS, Roger J. Tracking decrement as a result of grip holding endurance. *Government Reports Announcements* (Abstract) AD 761 018 (Available only from NTIS) 73:62, July 25, 1973.
74. BOCK, R. Darrell, and others. A parameterization for individual human growth curves. *Human Biology* 45:63-80, Feb. 1973.
75. BODDY, John. Evoked potentials in reaction time with a variable foreperiod. *Quarterly Journal of Experimental Psychology* 25:323-34, Aug. 1973.
76. BOILEAU, Richard A.; MASSEY, Benjamin H.; and MISNER, James E. Body composition changes in adult men during selected weight training and jogging programs. *Research Quarterly* 44:158-68, May 1973.
77. BOLTON, Brian. An alternative solution for the factor analysis of communication skills and nonverbal abilities of deaf clients. *Educational and Psychological Measurement* 33:459-63, Summer 1973.
78. BONIN, B., and others. Blood coagulation during critical decompression following diving experiments with oxygen/helium. *Aerospace Medicine* 44:508-12, May 1973.
79. BOOTH, Frank W., and KELSO, James R. Cytochrome oxidase of skeletal muscle: Adaptive response to chronic disuse. *Canadian Journal of Physiology and Pharmacology* 51:679-81, Sept. 1973.
80. BORG, E. Nonlinear dynamic properties of a somatomotor reflex system. *Acta Physiologica Scandinavica* 87:15-26, Jan. 1973.
81. BORG, Gunnar A.V. Perceived exertion: A note on history and methods. *Medicine and Science in Sports* 5(2):90-93, Summer 1973.
82. BORHANI, Nema F. O., and KRUS, Jess F. Use of health services in a rural community. Epidemiologic features. *Health Services Reports* 88:275-88, March 1973.
83. BOSSE, Raymond, and ROSE, Charles L. Age and interpersonal factors in smoking cessation. *Journal of Health and Social Behavior* 14:381-87, Dec. 1973.
84. BOTTIGER, L.E. Regular decline in physical working capacity with age. *British Medical Journal* 3:270-71, Aug. 4, 1973.
85. BOTWINICK, J., and STORANDT, M. Age differences in reaction time as a function of experience, stimulus intensity and preparatory interval. *Journal of Genetic Psychology* 123:209-18, Dec. 1973.

12 COMPLETED RESEARCH FOR 1974

86. BOUTOURLINE, Elisabeth, and others. Nutritional correlates of child development in southern Tunisia. I. Linear growth. *Growth* 36:407-24, Dec. 1972.
87. BOUTOURLINE, Elisabeth, and others. Nutritional correlates of child development in southern Tunisia. II. Mass measurement. *Growth* 37:91-110, June 1973.
88. BOUTOURLINE, Elisabeth, and others. Nutritional correlates of child development in southern Tunisia. III. Skeletal growth and maturation. *Growth* 37:223-47, Sept. 1973.
89. BOVE, Alfred A., and others. Diving bradycardia as a factor in underwater blackout. *Aerospace Medicine* 44:245-48, March 1973.
90. BRICK, R.H., and WALLS, R.T. Color preference shifts in preschool children by differential sensory conditioning. *Child Study Journal* 3:59-70, Summer 1973.
91. BRIDGES, P.K. Practical aspects of the use of some psychological tests of anxiety in a situation of stress. *British Journal of Psychiatry* 123:587-96, Nov. 1973.
92. BROOKS, N. Memory and head injury. *Journal of Nervous and Mental Disease* 155:350-55, Nov. 1973.
93. BROWN, Barry S., and others. Use of alcohol by addict and nonaddict populations. *American Journal of Psychiatry* 130:599-601, May 1973.
94. BRYNTESON, Paul, and SINNING, Wayne E. The effects of training frequencies on the retention of cardiovascular fitness. *Medicine and Science in Sports* 5(1):29-33, Spring 1973.
95. BUCHBINDER, Neil A., and ROBERTS, William C. Alcoholism. *Archives of Internal Medicine* 132:689-92, Nov. 1973.
96. BUCKY, Steven F. The relationship between background and extent of heroin use. *American Journal of Psychiatry* 130:709-10, June 1973.
97. BUDERER, Melvin C., and others. Use of the single-breath method of estimating cardiac output during exercise-stress testing. *Aerospace Medicine* 44:756-60, July 1973.
98. BUGYI, B. Estimation of the residual volume of the lungs by anthropometrical determinations. *Journal of Sports Medicine and Physical Fitness* 13:191-93, Sept. 1973.
99. BUHRMANN, Hans G. Scholarship and athletics in junior high school. *International Review of Sport Sociology* 7:119-31, 1972.
100. BURDICK, J.A., and ZLOTY, R.B. Wakeful heart rate, personality and performance. *Journal of Sports Medicine and Physical Fitness* 13:17-25, March 1973.
101. BURDSAL, C., and others. The relationship of marihuana usage to personality and motivation factors. *Journal of Psychology* 85:45-52, Sept. 1973.
102. BUSS, Arnold H.; PLOMIN, Robert; and WILLERMAN, Lee. The inheritance of temperaments. *Journal of Personality* 41:513-24, Dec. 1973.
103. BYRNE, Donn, and others. Husband-wife similarity in response to erotic stimuli. *Journal of Personality* 41:385-94, Sept. 1973.
104. BYRD, R.J. The effect of controlled, mild exercise on the rate of physiological aging. *Journal of Sports Medicine and Physical Fitness* 13:1-3, March 1973.
105. BYRD, Ronald, and BARTON, David. Heart rate responses to normal weight lifting work-outs of novices and experienced lifters. *Journal of Physical Education* 71:24-26, Sept.-Oct. 1973.
106. BYRD, Ronald, and GENTRY, Roy B., Jr. A method of determining CO₂ percentages using a paramagnetic oxygen analyzer. *Research Quarterly* 44:237-41, May 1973.
107. CAIN, W.S. Nature of perceived effort and fatigue: Roles of strength and blood flow in muscle contractions. *Journal of Motor Behavior* 5:33-48, March 1973.
108. CAIN, W.S., and STEVENS, J.C. Constant-effort contractions related to the electromyogram. *Medicine and Science in Sports* 5(2):121-27, Summer 1973.
109. CAIRD, F.I.; ANDREWS, G.R.; and KENNEDY, R.D. Effect of posture on blood pressure in the elderly. *British Heart Journal* 35:527-30, May 1973.
110. CALDWELL, L.S., and GROSSMAN, E.E. Effect scaling of isometric muscle contractions. *Journal of Motor Behavior* 5:9-16, March 1973.
111. CALDWELL, Lee S., and GROSSMAN, Eugene F. Effort scaling of isometric muscle contraction. *Government Reports Announcements* (Abstract) AD 753 933 (Available only from NTIS) 73:45, March 1973.
112. CAMNER, Per; PHILIPSON, Klas; and ARVIDSSON, Ture. Withdrawal of cigarette smoking. *Archives of Environmental Health* 26:90-92, Feb. 1973.
113. CAMPBELL, Katherine, and others. Electromyographic investigation of the relative activity among four components of triceps surae. *American Journal of Physical Medicine* 52:30-41, Feb. 1973.
114. CARLSON, Robert B. Cross transfer during flexor serial isometric trials. *American Corrective Therapy Journal* 27(2):36-39, March-April 1973.
115. CARROLL, D. Physiological response to relevant and irrelevant stimuli in a simple reaction time situation. *Ergonomics* 16:587-94, Sept. 1973.

116. CARTER, J.E.L.; STEPNIČKA, Jiri; and CLARYS, Jan P. Somatotypes of male physical education majors in four countries. *Research Quarterly* 44:361-71, Oct. 1973.
117. CASE, Samuel, and others. Comparison of levels of fundamental skill and cardiorespiratory fitness of blind, deaf, and non-handicapped high school age boys. *Perceptual and Motor Skills* 36:1291-94, June 1973.
118. CASSIDY, James T.; PETTY, Ross E.; and SULLIVAN, Donita B. Abnormalities in the distribution of serum immunoglobulin concentrations in juvenile rheumatoid arthritis. *Journal of Clinical Investigation* 52:1931-36, Aug. 1973.
119. CATTO, G.R.D.; SMITH, F.W.; and MacLEOD, M. Treatment of muscle cramps during maintenance haemodialysis. *British Medical Journal* 5876:389-90, Aug. 18, 1973.
120. CERNY, F.C.; DEMPSEY, J.A.; and REDDAN, W.G. Pulmonary gas exchange in nonnative residents of high altitudes. *Journal of Clinical Investigation* 52:2993-99, Dec. 1973.
121. CHAFFIN, Don B. Localized muscle fatigue-definition and measurement. *Journal of Occupational Medicine* 15:346-54, April 1973.
122. CHAMBERLAIN, Geoffrey. Usage of contraception and abortion. *Royal Society of Health Journal* 92:191-93, Aug. 1972.
123. CHANEY, Dawn S., and ANDREASEN, Lois. Relaxation and neuromuscular tension control and changes in motor performance under induced tension. *Perceptual and Motor Skills* 36:185-86, Feb. 1973.
124. CHANG, Te-Wen; DesROSIER, Suzanne; and WEINSTEIN, Louis. Booster immunization against rubella in adult women. *Archives of Internal Medicine* 131:530-31, April 1973.
125. CHAO, Edmund Yee-Su, and RIM, Kwan. Application of optimization principles in determining the applied moments in human leg joints during gait. *Journal of Biomechanics* 6:497-510, Sept. 1973.
126. CHASE, Helen C., and others. A study of risks, medical care, and infant mortality. *American Journal of Public Health* 63:1-56, Sept. Suppl. 1973.
127. CHASEY, William C., and KNOWLES, Claudia Jane. Effects of overlearning on retention and relearning of gross-motor skill by mentally retarded males. *Perceptual and Motor Skills* 36:503-09, April 1973.
128. CHIN, A.K., and others. Plasma catecholamine response to exercise and cold adaptation. *Journal of Applied Physiology* 34:409-12, April 1973.
129. CHISSOM, Brad S., and THOMAS, Jerry R. Relationship between perceptual-motor and academic measures for disadvantaged preschool children. *Perceptual and Motor Skills* 36:152-54, Feb. 1973.
130. CHRISTENSEN, James E., and YOESTING, Dean R. Social and attitudinal variants in high and low use of outdoor recreation facilities. *Journal of Leisure Research* 5:6-15, Spring 1973.
131. CHRISTINA, Robert W. Influence of enforced motor and sensory sets on reaction latency and movement speed. *Research Quarterly* 44:483-87, Dec. 1973.
132. CLARK, Brant, and STEWART, John D. Relation between motion sickness experience and tests of the perception of rotation in pilots and nonpilots. *Aerospace Medicine* 44:393-96, April 1973.
133. CLARK, Dale A.; ALLEN, Margaret F.; and WILSON, Frederick H., Jr. USAFSAM cardiovascular disease followup study: 1972 progress report. *Aerospace Medicine* 44:194-97, Feb. 1973.
134. CLARKE, Miriam F. Stature and body build of women medical students: A study of eight classes at the Medical College of Pennsylvania. *Human Biology* 45:385-401, Sept. 1973.
135. CLAYSON, David. Public health training in the urban ghetto and among the rural poor: Comparative effects on medical students' concept modification and self evaluation. *International Journal of Social Psychiatry* 19:82-87, Spring/Summer 1973.
136. COHEN, M.M.; CROSBIE, R.J.; and BLACKBURN, L.H. Disorienting effects of aircraft catapult launchings. *Aerospace Medicine* 44:37-39, Jan. 1973.
137. COHN, Peter F., and others. Diastolic heart sounds during static (handgrip) exercise in patients with chest pain. *Circulation* 47:1217-21, June 1973.
138. COHN, Peter F., and others. Effects of angiographic contrast medium on left ventricular function in coronary heart disease. Comparison with static and dynamic exercise. *American Journal of Cardiology* 32:21-26, July 1973.
139. COLEMAN, A.E.; BURFORD, Charles L.; and KREUGER, Paul. Aerobic capacity of relatively sedentary males. *Journal of Occupational Medicine* 15:628-32, Aug. 1973.
140. COLEMAN, A.E., and MORTAGY, A.K. Ambient head temperature and football helmet design. *Medicine and Science in Sports* 5:204-08, Fall 1973.
141. COLLINS, William E., and IAMPIETRO, P.F. Effects of repeated simulated sonic booms of 1.0 PSF on the sleep behavior of young and old subjects. *Aerospace Medicine* 44:987-95, Sept. 1973.

14 COMPLETED RESEARCH FOR 1974

142. The Committee on Exercise. Exercise testing. Performance and interpretation. *Industrial Medicine and Surgery* 42:20-28, Jan. 1973.
143. COMPTON, D.; HILL, P. McN.; and SINCLAIR, J.D. Weightlifters' blackout. *Lancet* 2:1234-37, Dec. 1973.
144. CONLEY, John A., and O'ROURKE, Thomas W. On improving instruction in sex education. *Journal of School Health* XLIII:591-93, Oct. 1973.
145. CONSIDINE, William J., and SULLIVAN, William J. Relationship of selected tests of leg strength and leg power on college men. *Research Quarterly* 44:404-16, Dec. 1973.
146. COOK, Bill, and BRYNTESON, Paul. Effect of a season of collegiate swimming competition and training on selected responses. *Research Quarterly* 44:63-70, March 1973.
147. COOK, Judith, and others. A survey of the nutritional status of school children. *British Journal of Preventive and Social Medicine* 27:91-99, May 1973.
148. COSTANTINI, A.F., and HOVING, K.L. The relationship of cognitive and motor response inhibition to age and I.Q. *Journal of Genetic Psychology* 123:309-20, Dec. 1973.
149. COSTANTINI, Arthur F.; CORSINI, David A.; and DAVIS, Jack E. Conceptual tempo, inhibition of movement, and acceleration of movement in 4-, 7-, and 9-yr.-old children. *Perceptual and Motor Skills* 37:779-84, Dec. 1973.
150. COSMILL, D.L., and others. Glucose ingestion at rest and during prolonged exercise. *Journal of Applied Physiology* 34:764-69, June 1973.
151. COTES, J.E., and others. Cardiac frequency during submaximal exercise in young adults: Relation to lean body mass, total potassium and amount of leg muscle. *Quarterly Journal of Experimental Physiology and Cognitive Medical Sciences* 58:239-50, July 1973.
152. COTTEN, Doyice J.; PLASTER, Thomas; and THOMAS, Jerry R. Golf: A plastic ball for golf iron skill. *Journal of Physical Education* 70:79-81, March-April 1973.
153. COTTEN, Doyice J., and PURCELL, Kenneth. Interruptions in practice and mean reaction times. *Perceptual and Motor Skills* 36:290, Feb. 1973.
154. CRAFT, A.W.; SHOW, D.A.; and CARTHLIDGE, N.E.F. Bicycle injuries in children. *British Medical Journal* 5885:146, Oct. 20, 1973.
155. CRAIG, A.B., Jr. Olympics 1972: An evaluation of selected winning performances. *Medicine and Science in Sports* 5:191-94, Fall 1973.
156. CRASKE, B., and CRAWSHAW, M. Latency of auto kinesis and convergence of the eyes. *British Journal of Psychology* 64:199-204, May 1973.
157. CRUISE, Mary O. A longitudinal study of the growth of low birth weight infants. I. Velocity and distance growth, birth to 3 years. *Pediatrics* 51:620-28, March 1973.
158. CUDDIGAN, J.H.P. Quadriceps femoris strength. *Rheumatology and Rehabilitation* XX:77-83, May 1973.
159. CUETO, Luis, and MOLLER, James H. Haemodynamics of exercise in children with isolated aortic valvular disease. *British Heart Journal* 35:93-98, Jan. 1973.
160. CUMMING, G.R., and others. Calf X-ray measurements correlated with age, body build and physical performance in boys and girls. *Journal of Sports Medicine and Physical Fitness* 13:90-95, June 1973.
161. CUMMING, G.R., and others. Exercise electrocardiogram patterns in normal women. *British Heart Journal* 35:1055-61, Oct. 1973.
162. CURETON, Edward E., and others. Length of test and standard error of measurement. *Educational and Psychological Measurement* 33:63-68, Spring 1973.
163. CURTIS, D.W.; PAULOS, M.A.; and RICE, S.J. Relation between disjunctive reaction time and stimulus difference. *Journal of Experimental Psychology* 99:167-73, July 1973.
164. DANES, P. The rule of central processes in the perception of visual after-images. *British Journal of Psychology* 64:325-38, Aug. 1973.
165. DARDEN, Joseph S. "Once more into the breach ..." to the defense of health education. *Journal of School Health* XLIII:523-25, Oct. 1973.
166. DaSILVA, A.M.T., and HAMOSH, P. Effect of smoking a single cigarette on the "small airways." *Journal of Applied Physiology* 34:361-65, March 1973.
167. DATTA, S.R.; CHATTERJEE, B.B.; and ROY, B.N. The relationship between energy expenditure and pulse rates with body weight and the load carried during load carrying on the level. *Ergonomics* 16:507-13, July 1973.
168. DAVEY, C.P. Physical exertion and mental performance. *Ergonomics* 16:595-99, Sept. 1973.
169. DAVIES, C.T.M., and others. Exercise tolerance and body composition of male and female Africans aged 18-30 years. *Human Biology* 45:31-40, Feb. 1973.
170. DAVIES, C.T.M., and FEW, J.D. Effects of exercise on adrenocortical function. *Journal of Applied Physiology* 35:887-91, Dec. 1973.

171. DAVIES, C.T.M., NEILSON, J.M.M., and SAMUELOFF, S. Electrocardiographic changes during exercise in Kurdish and Yemenite Jews in Israel. *British Heart Journal* 35:207-10, Feb. 1973.
172. DAVIES, C.T.M., and Van HAAREN, J.P.M. Maximum aerobic power and body composition in healthy east African older male and female subjects. *American Journal of Physical Anthropology* 39:395-402, Nov. 1973.
173. DAVIS, Billy E., and BERGER, Richard A. Relative academic achievement of varsity athletes. *Research Quarterly* 44:59-62, March 1973.
174. DAVIS, P.R. Physical causation of disease. *Royal Society of Health Journal* 92:63-64, April 1972.
175. DAVIS, Ray L. Making health education relevant and exciting in elementary and junior high school. *Health Services Reports* 88:99-105, Feb. 1973.
176. DEABLER, Herdis L.; HARTL, Emil M.; and WILLIS, Constance A. Physique and personality: Somatotype and the 16 PF. *Perceptual and Motor Skills* 36:927-33, June 1973.
177. DeDUCA, Carlo J., and FORREST, William J. Force analysis of individual muscles acting simultaneously on the shoulder joint during isometric abduction. *Journal of Biomechanics* 6:385-93, July 1973.
178. DEECKE, L., and others. Hearing under respiratory stress. Latency changes of the human auditory evoked responses during hyperventilation, hypoxia, asphyxia, and hypercapnia. *Aerospace Medicine* 44:1106-11, Oct. 1973.
179. DEIVANAYAGAM, Subramaniam. Prediction of endurance time limit for muscular work under alternating work load conditions. *Government Reports Announcements* (Abstract) AD 759 962 (Available only from NTIS) 73:51, July 10, 1973.
180. DENNIS, K.J. Contraception and sex education. *Royal Society of Health Journal* 92:198-201, Aug. 1972.
181. DERSHOWITZ, Zecharia. Direction of error on the body adjustment test. *Perceptual and Motor Skills* 37:847-54, Dec. 1973.
182. Di GIUSEPPE, Raymond A. Internal-external control of reinforcement and participation in team, individual, and intramural sports. *Perceptual and Motor Skills* 36:33-34, Feb. 1973.
183. DILL, D.B., and others. Responses of men and women to two-hour walks in desert heat. *Journal of Applied Physiology* 35:231-35, Aug. 1973.
184. Di PRAMPERO, P.E., and others. Alactic O₂ debt and lactic acid production after exhausting exercise in man. *Journal of Applied Physiology* 34:628-32, May 1973.
185. DOHRENWEND, Barbara Snell. Life events as stressors: A methodological inquiry. *Journal of Health and Social Behavior* 14:167-75, June 1973.
186. DOLLERY, C.T. Adrenergic drugs in the treatment of hypertension. *British Medical Bulletin* 29:158-62, May 1973.
187. DOWD, P.J.; WOLFE, J.W., and CRAMER, R.L. Aftereffects of alcohol on the perception and control of pitch attitude during centripetal acceleration. *Aerospace Medicine* 44:928-30, Aug. 1973.
188. DOWER, Gordon E., and others. Ischemic polarcardiographic changes induced by exercise: A new criterion. *Circulation* 48:725-34, Oct. 1973.
189. DRENNICK, F.J., and DENNIN, H.F. Energy expenditure in fasting obese men. *Journal of Laboratory and Clinical Medicine* 81:421-30, March 1973.
190. EDE, M.C. Moore, and BURR, R.G. Circadian rhythm or urinary calcium excretion during immobilization. *Aerospace Medicine* 44:495-98, May 1973.
191. EDINGTON, D.W., WARD, G.R., and SAVILLE, W.A. Energy metabolism of working muscle: Concentration profiles of selected metabolites. *American Journal of Physiology* 224:1375-79, June 1973.
192. EDWARDS, Owen M., and BAYLISS, R.L.S. Urinary excretion of water and electrolytes in normal females during the follicular and luteal phases of the menstrual cycle: The effect of posture. *Clinical Science and Molecular Medicine* 45:495-504, Oct. 1973.
193. EISENTHAL, S. Evaluation of a community mental health role using a structured Q sort. *Community Mental Health Journal* 9:25-33, Spring 1973.
194. EISENTHAL, S., and MALAMUD, W.I. Evaluation of priorities in a community mental health center. *Community Mental Health Journal* 9:215-23, Fall 1973.
195. EITZEN, D. Stanley. The effect of group structure on the success of athletic teams. *International Review of Sport Sociology* 8:7-17, 1973.
196. ELDRIDGE, F.L. Posthyperventilation breathing: Different effects of active and passive hyperventilation. *Journal of Applied Physiology* 34:422-30, April 1973.
197. ELIZONDO, Reynaldo S. Local control of eccrine sweat gland function. *Federation Proceedings* 32:1583-87, May 1973.

16 COMPLETED RESEARCH FOR 1974

198. ELKUS, R., and BASMAJIAN, John V. Endurance in hanging by the hands. *American Journal of Physical Medicine* 52:124-27, June 1973.
199. ELLIS, F.R., and NASSER, S. A pilot study of vitamin B₁₂ in the treatment of tiredness. *British Journal of Nutrition* 30:277-83, Sept. 1973.
200. ELLS, J. Analysis of temporal and attentional aspects of movement control. *Journal of Experimental Psychology* 99:10-21, June 1973.
201. EMIRGIL, Cemil, and SOBOL, Bruce J. The effects of weight reduction on pulmonary function and the sensitivity of the respiratory center in obesity. *American Review of Respiratory Disease* 108:831-42, Oct. 1973.
202. ERICKSSON, B.O.; GALLNICK, P.D.; and SALTIN, B. Muscle metabolism and enzyme activities after training in boys 11-13 years old. *Acta Physiologica Scandinavica* 87:487-97, April 1973.
203. ERICKSSON, B.O., and KOCH, G. Effect of physical training on homodynamic responses during submaximal and maximal exercise in 11-13 years old boys. *Acta Physiologica Scandinavica* 87:27-39, Jan. 1973.
204. ERICSON, S., and MYRBERG, N. The morphology of the sphenooccipital synchondrosis at the age of eight evaluated by tomography. *Acta Morphologica Neerlando-Scandinavica* 11:197-208, Oct. 1973.
205. EVERETT, A.V. Personality assessment at the individual level using the semantic differential. *Educational and Psychological Measurement* 33:837-44, Winter 1973.
206. FAGRAEUS, L.J., and others. Oxygen uptake during maximal work at lowered and raised ambient air pressures. *Acta Physiologica Scandinavica* 87:411-21, March 1973.
207. FELTON, Jean S. Conducting cardiopulmonary evaluations of county of Los Angeles personnel. *Health Services Reports* 88:515-22, June-July 1973.
208. FERRIS, Steven H. Improving distance estimation underwater: Long-term effectiveness of training. *Perceptual and Motor Skills* 36:1089-90, June 1973.
209. FIELD, Donald R., and O'LEARY, Joseph T. Social groups as a basis for assessing participation in selected water activities. *Journal of Leisure Research* 5:16-25, Spring 1973.
210. FIRTH, D., and others. The value of health visitors in a rehabilitation unit. *Rheumatology and Rehabilitation* XII:143-47, Aug. 1973.
211. FISHBURNE, Jr., Robert P., and WAAG, Wayne L. Temporal characteristics of interstimulus interval in serial choice reaction time. *Perceptual and Motor Skills* 37:723-26, Dec. 1973.
212. FITTS, R.H.; NAGLE, F.J.; and CASSENS, R.G. Characteristics of skeletal muscle fiber types in the miniature pig and the effect of training. *Canadian Journal of Physiology and Pharmacology* 51:825-31, Nov. 1973.
213. FLETCHER, Raymond. Interest and participation in high school activities by college freshmen. *Perceptual and Motor Skills* 36:1287-90, June 1973.
214. FLICK, Grad L., and DUNCAN, Caroline. Perceptual-motor dysfunction in children with sickle cell trait. *Perceptual and Motor Skills* 36:234, Feb. 1973.
215. FLOCK, Ake, and RUSSELL, Ian. Efferent nerve fibres: Post-synaptic action on hair cells. *Nature-New Biology* 243:89-91, May 1973.
216. FORBES, Gilbert B. Growth of the lean body mass in man. *Growth* 36:325-38, Dec. 1972.
217. FORBES, William F., and GENTLEMAN, Jane F. A possible similar pathway between smoking-induced life shortening and natural aging. *Journal of Gerontology* 28:302-11, July 1973.
218. FORSYTH, H.L., and SINNING, W.E. The anthropometric estimation of body density and lean body weight of male athletes. *Medicine and Science in Sports* 5:174-80, Fall 1973.
219. FORWARD, Edna M., and HAGADONE, Marsha C. Sensory feedback and motor skill. *Physical Therapy* 53:614-22, June 1973.
220. FOULKS, J.G.; MILLER, J.A.D.; and PERRY, Florence A. Repolarization-induced reactivation of contracture tension in frog skeletal muscle. *Canadian Journal of Physiology and Pharmacology* 51:324-34, May 1973.
221. FOWLER, Barry. Effect of hyperbaric air on short-term and long-term memory. *Aerospace Medicine* 44:1017-22, Sept. 1973.
222. FOX, E.L., and others. Intensity and distance of interval training programs and changes in aerobic power. *Medicine and Science in Sports* 5(1):18-22, Spring 1973.
223. FOX, Vernelie. Alcoholism in adolescents. *Journal of School Health* XLIII:32-35, Jan. 1973.
224. FRANK, Charles W.; WEINBLATT, Eve; and SHAPIRO, Sam. Angina pectoris in men: Prognostic significance of selected medical factors. *Circulation* 47:509-17, March 1973.
225. FRANSWORTH, Dana L. Drug use for pleasure: A complex social problem. *Journal of School Health* XLIII:153-58, March 1973.
226. FRATTALI, V., and ROBERTSON, R. Nutritional evaluation of humans during an oxygen-helium dive to a simulated depth of 100 feet. *Aerospace Medicine* 44:14-21, Jan. 1973.

227. FREISCHLAG, Jerry. A comparison of the effects of sex, competition, and ability on a perceptual motor task. *Research Quarterly* 44:178-84, May 1973.
228. FRETZ, Bruce R., and JOHNSON, Warren R. Behavioral changes in children participating in a physical developmental skill. *Perceptual and Motor Skills* 36:855-62, June 1973.
229. FRIEDMAN, Gary D., and others. Smoking habit and the leukocyte count. *Archives of Environmental Health* 26:137-43, March 1973.
230. FRIEDMAN, Gary D.; SIEGELAUB, Abraham B.; and SELTZER, Carl C. Cigarette smoking and exposure to occupational hazards. *American Journal of Epidemiology* 98:175-83, Sept. 1973.
231. FRINGER, Margaret N. Relationship among selected cardiorespiratory variables in young adult females. *Research Quarterly* 44:448-57, Dec. 1973.
232. FRISANCHO, A.R., and others. Influence of developmental adaptation on aerobic capacity at high altitude. *Journal of Applied Physiology* 34:176-80, Feb. 1973.
233. FRISBY, J.P.; BARRETT, R.F.; and THORNTON, J.A. Effect of mild acute hypoxia on a decision-making task. *Aerospace Medicine* 44:523-26, May 1973.
234. FRITH, C.O. Learning rhythmic hand movements. *Quarterly Journal of Experimental Psychology* 25:253-59, May 1973.
235. FROELICHER, Victor F., and others. The correlation of coronary angiography and the electrocardiographic response to maximal treadmill testing in 76 asymptomatic men. *Circulation* 48:597-604, Sept. 1973.
236. FUJIHARA, Y., and others. Cardiorespiratory transients in exercising man. *Journal of Applied Physiology* 35:51-67, July 1973.
237. FULLER, G.B. Three categories of visual-motor performance of children with a reading disability and their theoretical implications. *Psychology in the Schools* 10:19-22, Jan. 1973.
238. FURUSE, Akira, and others. Skeletal muscle gas tension: Indicator of cardiac output and peripheral tissue perfusion. *Surgery* 74:214-22, Aug. 1973.
239. GAGGE, A.P. Rational temperature indices of man's thermal environment and their use with a 2-node model of his temperature regulation. *Federation Proceedings* 32:1572-82, May 1973.
240. GALLANNAUGH, S. Arthroscopy of the knee joint. *British Medical Journal* 3:285, Aug. 4, 1973.
241. GALLENGSTEIN, Joseph, and HUSTON, Ronald L. Analysis of swimming motions. *Human Factors* 15:91-98, Feb. 1973.
242. GARRICK, J.G., and REQUA, R.K. Role of external support in the prevention of ankle sprains. *Medicine and Science in Sports* 5:200-03, Fall 1973.
243. GARRICK, James G. Clues to knee injuries in athletes. *American Family Physician* 8:128-33, Oct. 1973.
244. GEFFEN, Gina; BRADSHAW, J.L.; and NETTLETON, N.C. Attention and hemispheric differences in reaction time during simultaneous audio-visual tasks. *Quarterly Journal of Experimental Psychology* 25:404-12, Aug. 1973.
245. GEHA, Alexander S., and others. Response of the hypertrophied heart to stress. *Surgery* 74:276-83, Aug. 1973.
246. GENOVA, E. Changes in certain physical functions affected by autogenous relaxation. *Journal of Sports Medicine and Physical Fitness* 13:125-30, June 1973.
247. GENTLES, J.C., and EVANS, E.G.V. Foot infections in swimming baths. *British Medical Journal* 3:260-62, Aug. 4, 1973.
248. GEORGE, C. Reliability estimates of grip strength assessment in the institutionalized mentally retarded. *American Corrective Therapy Journal* 27:173-75, Nov.-Dec. 1973.
249. GEORGENSON, M.A. Spatial frequency selectivity of a visual tilt illusion. *Nature* 245:43-45, Sept. 7, 1973.
250. GIBSON, J.; WINTER, P.J.; and GRAHAME, R. Radiotherapy in the treatment of osteoarthritis of the knee. *Rheumatology and Rehabilitation* XII:42-46, Feb. 1973.
251. GILLANI, Noorallah V., and GHISTA, Dhanjoo N. Muscle fatigue induced by sustained isometric contraction. *Human Factors* 15:67-73, Feb. 1973.
252. GINDHART, Patricia S. Growth standards for the tibia and radius in children aged one month through eighteen years. *American Journal of Physical Anthropology* 39(1):41-48, July 1973.
253. GIORGI, P.P., and others. Axonal flow and myelin protein in the optic pathway. *Nature-New Biology* 244:121-24, July 1973.
254. GISOLFI, C.V. Work-heat tolerance derived from interval training. *Journal of Applied Physiology* 35:349-54, Sept. 1973.
255. GIVONI, B., and GOLDMAN, R.F. Predicting heart response to work, environment, and clothing. *Journal of Applied Physiology* 34:205-13, Feb. 1973.

18 COMPLETED RESEARCH FOR 1974

- 256 GLENCROSS, D.J. The effects of changes in direction, load and amplitude of movement on gradation of effort. *Journal of Motor Behavior* 5:207-16, Dec. 1973.
- 257 GLENCROSS, D.J. Response complexity and the latency of different movement patterns. *Journal of Motor Behavior* 5:81-94, June 1973.
- 258 GLEISER, M.A. Effects of hypoxia and physical training on hemodynamic adjustments to one-legged exercise. *Journal of Applied Physiology* 34:655-59, May 1973.
- 259 GLEISER, M.A., and VOGEL, J.A. Effects of acute alteration of $\dot{V}O_2$ max on endurance capacity of men. *Journal of Applied Physiology* 34:443-47, April 1973.
- 260 GLEISER, M.A., and VOGEL, J.A. Endurance capacity for prolonged exercise on the bicycle ergometer. *Journal of Applied Physiology* 34:438-42, April 1973.
- * 261 GLOBUS, Gordon G., and others. Ultradian rhythms in human telemetered gross motor activity. *Aerospace Medicine* 44:882-87, Aug. 1973.
- 262 GODIN, Gaetan, and SHEPHARD, Roy J. Body weight and the energy cost of activity. *Archives of Environmental Health* 27:289-93, Nov. 1973.
- 263 GOLDWATER, B., and ZIRUL, G. Tachistoscopic detection as a function of varying degrees of physical exercise. *Perceptual and Motor Skills* 37:399-402, Oct. 1973.
- 264 GOLINICK, P.D. Effect of training on enzyme activity and fiber composition of human skeletal muscle. *Journal of Applied Physiology* 34:107-11, Jan. 1973.
- 265 GOLINICK, P.D., and others. Glycogen depletion pattern in human skeletal muscle fibers after heavy exercise. *Journal of Applied Physiology* 34:615-18, May 1973.
- 266 GONZALEZ-SERRATOS, H., VALLE, R., and CILLERO, A. Effect of muscle stretching on tension development and mechanical threshold during contractures. *Nature-New Biology* 246:221-22, Dec. 19, 26, 1973.
- 267 GOODFELLOW, R.A.H., and SMITH, Patricia Cam. Effects of environmental color on two psychomotor tasks. *Perceptual and Motor Skills* 37:296-98, Aug. 1973.
- 268 GOODMAN, L., and WIEDERHALT, J.I. Predicting reading achievement in disadvantaged children. *Psychology in the Schools* 10:181-84, April 1973.
- 269 GORDON, H. Is abortion a form of contraception? *Royal Society of Health Journal* 92:194-97, Aug. 1972.
- 270 GORDON, I.D., THOMPSON, Margaret M., and ALSPAUGH, J.W. The relative importance of various physical education objectives for grades K-2. *Research Quarterly* 44:192-96, May 1973.
- 271 GORDON, T., and KANNEL, W.B. The effects of overweight on cardiovascular disease. *Geriatrics* 28:80-92, Aug. 1973.
- 272 GRAHAM, T.F., and ANDREW, G.M. The variability of repeated measurement of oxygen debt in man following a maximal treadmill exercise. *Medicine and Science in Sports* 5(2):73-78, Summer 1973.
- 273 GRAMZA, Anthony F. An analysis of stimulus dimensions which define children's encapsulating play objects. *Perceptual and Motor Skills* 37:495-501, Oct. 1973.
- 274 GRANJON, M., and others. Effects of timing signal on simple reaction time with "non-aging" foreperiods. *Journal of Experimental Psychology* 101:139-45, Nov. 1973.
- 275 GREEN, Dorothy E., and SEMZER, Daniel E. Changes in cigarette smoking by women -- An analysis, 1966 and 1970. *Health Services Reports* 88:631-36, Aug.-Sept. 1973.
- 276 GREENBURG, Barbara. Reaction time in the elderly. *American Journal of Nursing* 73:2056-58, Dec. 1973.
- 277 GRINKER, Joel, and others. Time perception as a function of weight reduction. A differentiation based on age at onset of obesity. *Psychosomatic Medicine* 35:104-11, March-April 1973.
- 278 GRINKER, Joel, HIRSCH, Jules, and LEVIN, Barry. The affective responses of obese patients to weight reduction. A differentiation based on age at onset of obesity. *Psychosomatic Medicine* 35:57-63, Jan.-Feb. 1973.
- 279 GROSSMAN, M., and PHILLIPS, M. Ocular mobility and reading skills. *Child Study Journal* 3:39-42, Winter 1973.
- 280 GROVES, Richard. Relationship of reaction time and movement time in a gross motor skill. *Perceptual and Motor Skills* 36:453-54, April 1973.
- 281 GRUBER, Joseph J., and KIRKENDALL, Don R. Effectiveness of motor, intellectual and personality domains in predicting group status in disadvantaged high school pupils. *Research Quarterly* 44:423-33, Dec. 1973.
- 282 GUARINO, Michael A.; GIOVANNOLI, Shirley M.; and BERMAN, Charles L. Hypertension detection by dentists. *Health Services Reports* 88:291-94, April 1973.
- 283 GUIARD, Yves, and REQUIN, Jean. Effects of preparatory period on a reaction-time followed by a pointing movement either guided or not. *Perceptual and Motor Skills* 37:980-82, Dec. 1973.

284. GUMP, L.R. The application of primary preventive mental health principles to the college community. *Community Mental Health Journal* 9:133-42, Summer 1973.
285. GUTHRIE, H.A., and others. Factor analysis of measures of nutritional status of preschool children. *American Journal of Clinical Nutrition* 26:491-96, May 1973.
286. GUTIN, Bernard. Exercise-induced activation and human performance: A review. *Research Quarterly* 44:256-68, Oct. 1973.
287. GYNTELBERG, Finn. Physical fitness and coronary heart disease in male residents in Copenhagen aged 40-59. *Danish Medical Bulletin* 20:1-4, Jan. 1973.
288. GYNTELBERG, Finn. Physical fitness and coronary heart disease in Copenhagen males aged 40-59. II. *Danish Medical Bulletin* 20:105-12, Aug. 1973.
289. HAAN, Norma; STROUD, Janice; and HOLSTEIN, Constance. Moral and ego stages in relationship to ego processes: A study of "hippies." *Journal of Personality* 41:596-612, Dec. 1973.
290. HAIGHT, J.S.J., and KEATINGE, W.R. Elevation in set point for body temperature regulation after prolonged exercise. *Journal of Physiology* 229:77-85, Feb. 1973.
291. HAINES, Richard F. Effect of prolonged bedrest and +G 2 acceleration upon peripheral visual response time. *Aerospace Medicine* 44:425-32, April 1973.
292. HALE, Henry B.; WILLIAMS, Edgar W.; and ELLIS, James P., Jr. Human endocrine-metabolic responses to graded oxygen pressures. *Aerospace Medicine* 44:33-36, Jan. 1973.
293. HALL, G.H., and MORRISON, C.F. New evidence for a relationship between tobacco smoking, nicotine dependence and stress. *Nature* 243:199-201, May 25, 1973.
294. HAMRMA, Richard J.; PAIGE, Joseph; and JORDON, John E. Construction of a Guttman facet designed cross-cultural attitude-behavior scale toward racial-ethnic interaction. *Education and Psychological Measurement* 33:565-76, Autumn 1973.
295. HANNON, J.P., and SUDMAN, D.M. Basic metabolic and cardiovascular function of women during altitude acclimatization. *Journal of Applied Physiology* 34:471-77, April 1973.
296. HANSEN, Aa. Prange. Serum growth hormone response to exercise in non-obese and obese normal subjects. *Scandinavian Journal of Clinical and Laboratory Investigation* 31:175-78, March 1973.
297. HANSON, J.S. Exercise responses following production of experimental obesity. *Journal of Applied Physiology* 35:587-91, Nov. 1973.
298. HANSON, J.S. Maximal exercise performance in members of the U.S. Nordic Ski Team. *Journal of Applied Physiology* 35:592-95 Nov. 1973.
299. HARALAMBIE, G. Neuromuscular irritability and serum creatine phosphate kinase in athletes in training. *Internationale Zeitschrift fur Angewandte Physiologie* 31:279-88, 1973.
300. HARRELL, W. Andrew. The effects of an aggressive model on the magnitude of extinction induced aggression. *Journal of Social Psychology* 90:311-15, Aug. 1973.
301. HARRIS, E.A., and others. Prediction of the physiological deadspace in resting normal subjects. *Clinical Science and Molecular Medicine* 45:375-86, Sept. 1973.
302. HARRIS, Mary B., and STOCKTON, Santiago J. A comparison of bilingual and monolingual physical education instruction with elementary school students. *Journal of Educational Research* 67:53-54, 56, Oct. 1973.
303. HARRIS, Stanley C., and SOMMER, Henry C. Interactive effects of intense noise and low-level vibration on tracking performance and response time. *Aerospace Medicine* 44:1013-16, Sept. 1973.
304. HARRIS, Willard S.; AGTAN, Neset; and POUGET, Jean M. Effects of nitroglycerin on responses of the systolic time intervals to exercise. *Circulation* 47:499-508, March 1973.
305. HARRISON, M.H. Comparison of the metabolic effects of centrifugation and heat stress in man. *Aerospace Medicine* 44:299-303, March 1973.
306. HARTLEY, L.R. Effect of prior noise and prior performance on serial reaction. *Journal of Experimental Psychology* 101:255-61, Dec. 1973.
307. HARTOG, Joseph. Psychiatric patients — Characteristics and preliminary epidemiology. *International Journal of Social Psychiatry* 19:49-59, Spring/Summer 1973.
308. HARTUNG, G. Harley. Specificity of training as indicated by heart-rate response to exercise. *Perceptual and Motor Skills* 36:639-45, April 1973.
309. HASAZI, Joseph E., and ALLEN, Robert M. Signal intensity and reinforcement effects on reaction time in brain-damaged and familial retardates. *Perceptual and Motor Skills* 36:1227-33, June 1973.
310. HASLOCK, Ian. The arthritis associated with Crohn's disease: A family study. *Rheumatology and Rehabilitation* XII:93, May 1973.
311. HAWKINS, H.L., and others. Focus of relative frequency effect in choice reaction time. *Journal of Experimental Psychology* 101:90-99, Nov. 1973.
312. HAYFLICK, Leonard. The biology of aging. *American Journal of the Medical Sciences* 265:432-45, June 1973.

20 COMPLETED RESEARCH FOR 1974

313. HEALEY, T.R., and LANDERS, D.M. Effect of need achievement and task difficulty on competitive and non-competitive motor performance. *Journal of Motor Behavior* 5:121-28, June 1973.
314. HEBERLEIN, Thomas A. Social psychological assumptions of user attitude surveys: The case of the Wilderness scale. *Journal of Leisure Research* 5:18-33, Summer 1973.
315. HEGSTED, D.M. Energy production during exercise. *Nutrition Reviews* 31:11-12, Jan. 1973.
316. HEIDE, J., and MOLBECH, S. Influence of after-movement on muscle memory following isometric muscle contraction. *Ergonomics* 16:787-96, Nov. 1973.
317. HEINILA, Kalevi. Survey of the value orientations of Finnish sport leaders. *International Review of Sport Sociology* 7:111-17, 1972.
318. HELFANT, R.H., and others. Use of bicycle ergometry and sustained handgrip exercise in the diagnosis of presence and extent of coronary heart disease. *British Heart Journal* 35:1321-25, Dec. 1973.
319. HELLMUTH, George A. Exercise after myocardial infarction. *American Family Physician* 8:94-104, Oct. 1973.
320. HENDERSON, David J., and BERGER, Richard A. Aerobic capacity and adrenocortical response to work and cold water stressors. *Proceedings of the National College Physical Education Association for Men* 76:106-13, 1973.
321. HENRY, Franklin M. Comments on the Hetherington paper. *Research Quarterly* 44:118, March 1973.
322. HERBISON, Gerald J., and GORDON, Edward E. Exercise of normal muscle: Biochemical effects. *Archives of Physical Medicine and Rehabilitation* 54:409-15, Sept. 1973.
323. HERSHEL, Jick, and others. Coffee and myocardial infarction. *New England Journal of Medicine* 289:63-67, July 12, 1973.
324. HETHERINGTON, Ross. Within-subject variation, measurement error, and selection of a criterion score. *Research Quarterly* 44:113-17, March 1973.
325. HIGGS, Susanne L. Maximal oxygen intake and maximal work performance of active college women. *Research Quarterly* 44:125-31, May 1973.
326. HILGARD, Ernest R. A neodissociation interpretation of pain reduction in hypnosis. *Psychological Review* 80:396-411, Sept. 1973.
327. HILL, S., and others. State-dependent effects of marihuana on human memory. *Nature* 243:241-42, May 25, 1973.
328. HINSON, Marilyn, and ROSENTSWIEG, Joel. Comparative electromyographic values of isometric, isotonic, and isokinetic contraction. *Research Quarterly* 44:71-78, March 1973.
329. HISKISSON, E.C., and others. Indomethacin for soft-tissue injuries: A double-blind study in football players. *Rheumatology and Rehabilitation* XII:159-160, Aug. 1973.
330. HOGAN, Robert. Moral conduct and moral characters: A psychological perspective. *Psychological Bulletin* 79:217-32, April 1973.
331. HOLBERTON, E.J., and GOLDSPINK, G. A radioimmunoassay for myosin in cultured skeletal muscle cells. *Experimental Cell Research* 79:471-74, June 1973.
332. HOLMGREN, A.; HERZOG, P.; and ASTROM, H. Work of breathing during exercise in healthy young men and women. *Scandinavian Journal of Clinical and Laboratory Investigation* 31:165-74, March 1973.
333. HOLLAND, John C. Computer-based storage and retrieval information systems that can be utilized in health, physical education, and recreation research. *Research Quarterly* 44:227-31, May 1973.
334. HONG, Suk Ki. Pattern of cold adaptation in women divers of Korea (Ama). *Federation Proceedings* 32:1614-22, May 1973.
335. HOOK, E.B., and SCHALL, W.J. Female fitness -x- heterosis and fitness of the human female. *Nature* 244:570-72, Aug. 31, 1973.
336. HOPKINS, Brian. Body-build stereotypes in cross-cultural perspective. *Perceptual and Motor Skills* 37:313-14, Aug. 1973.
337. HORNER, Theodore W., and HAWKER, Fred W. A statistical study of grip retention force. *Government Reports Announcements (Abstract)* AD 767 904/6GA (Available only from NTIS) 73:72, Dec. 10, 1973.
338. HOUDAS, Y., and others. Quantitative influence of CO₂ inhalation on thermal sweating in man. *Aerospace Medicine* 44:265-68, March 1973.
339. HUBER, N.B., and JOWETT, D. Relationships between lengths of long bones among recent Americans and early medieval Alamannic Germans. *American Journal of Physical Anthropology* 39(1):37-39, July 1973.
340. HUCHINGSON, Richard D. Effects of time constraint on closed-loop tracking performance and change in heart rate. *Perceptual and Motor Skills* 36:1195-98, June 1973.

341. HUIBREGTSE, William H., and others. Improvement of aerobic work capacity following nonstrenuous exercise. *Archives of Environmental Health* 27:12-15, July 1973.
342. HULL, D.H. Hypertension in young people. *Practitioner* 1256:195-203, Feb. 1973.
343. HUNTLEY, M. Stephen, Jr. Effects of alcohol and fixation-task difficulty on choice reaction time to extrafoveal stimulation. *Quarterly Journal of Studies on Alcohol* 34:89-103, March 1973.
344. HUSSAIN, M. Anwar. A fresh look at the incidence of protein deficiency in Pakistan. *British Journal of Nutrition* 29:211-19, March 1973.
345. HUTCHINSON, Vann Q., and COTTEN, Doyice J. Effects of audience and anxiety level on learning and performance of a complex gross motor skill by college women. *Perceptual and Motor Skills* 36:1103-08, June 1973.
346. INABA, Margaret, and others. Effectiveness of functional training active exercise and resistive exercise for patients with hemiplegia. *Physical Therapy* 53:28-35, Jan. 1973.
347. INGRAM, M. Meat preservation — past, present and future. *Royal Society of Health Journal* 92:121-30, June 1972.
348. JACKSON, Douglas W., and FEAGIN, John A. Quadriceps contusions in young athletes: Relation of severity of injury to treatment and prognosis. *Journal of Bone and Joint Surgery* 55-A:95-105, Jan. 1973.
349. JACKSON, Royal G. A preliminary bicultural study of value orientations and leisure attitudes. *Journal of Leisure Research* 5:10-22, Fall 1973.
350. JAFFE, P., and others. Relationship between plasma cortisol and peak expiratory flow rate in exercise-induced asthma and the effect of sodium cromoglycate. *Clinical Science and Molecular Medicine* 45:533-41, Oct. 1973.
351. JARRETT, A., and MATTHEWS, B.E. The physical nature of dermal collagen. *Rheumatology and Rehabilitation* XII:32-36, Feb. 1973.
352. JENKINS, C.D.; ZYZANSKI, Stephen J.; and ROSENMAN, Ray H. Biological, psychological and social characteristics of men with different smoking habits. *Health Services Reports* 88:844-51, Nov. 1973.
353. JERRETT, Steven A.; JEFFERSON, Devenia; and MENGEL, Charles E. Seizures, H_2O_2 formation and lipid peroxides in brain during exposure to oxygen under high pressure. *Aerospace Medicine* 44:40-44, Jan. 1973.
354. JEZEK, V., and SCHRJEN, Haemodynamic effect of deslanoside at rest and during exercise in patients with chronic bronchitis. *British Heart Journal* 35:2-8, Jan. 1973.
355. JIN-INN, Teoh; KINZIE, J.D.; and ENG-SEONG, Tan. Referrals to a psychiatric clinic in West Malaysia. *International Journal of Social Psychiatry* 18:301-07, Winter 1972-73.
356. JOHNSON, A.M., and BRIGGS, G.E. On the laws of display lead effects in choice reactions. *Journal of Experimental Psychology* 99:266-71, July 1973.
357. JOHNSON, C. Emory; BASMAJIAN, John V.; and DASHER, William. Electromyography of sartorius muscle. *Anatomical Record* 173:127-30, June 1972.
358. JOKL, E. Physique and performance. *American Corrective Therapy Journal* 27:99-111, July-Aug. 1973.
359. JOKL, Ernest, and JOKL, Peter. Analysis of winning times of track races for men in Mexico 1968 and Munich 1972. *American Corrective Therapy Journal* 27(1):9-11, Jan.-Feb. 1973.
360. JONES, B. When are vision and kinesthesia comparable. *British Journal of Psychology* 64:587-92, Nov. 1973.
361. JONES, N.L., and HADDON, R.W.T. Effect of a meal on cardiopulmonary and metabolic changes during exercises. *Canadian Journal of Physiology and Pharmacology* 51:445-50, June 1973.
362. JONES, N.L., and REBUCK, A.S. Rebreathing equilibration of CO_2 during exercise. *Journal of Applied Physiology* 35:538-41, Oct. 1973.
363. JOSEPH, N.T., and others. Indirect estimation of aerobic capacity in Indians. *Indian Journal of Medical Research* 61:252-59, Feb. 1973.
364. JOURDAN, M.H., and BRADFELD, R.B. Body composition changes during weight loss. *American Journal of Clinical Nutrition* 26:144-49, Feb. 1973.
365. KAMON, E., and others. Climbing and cycling with additional weights on the extremities. *Journal of Applied Physiology* 35:367-70, Sept. 1973.
366. KAMON, Eliezer. Rest allowance for stair climbing: A case study. *Journal of Occupational Medicine* 15:720-23, Sept. 1973.
367. KANDEL, Denise. Adolescent marijuana use: Role of parents and peers. *Science* 181:1067-69, Sept. 1973.
368. KAPLAN, Marvin A., and others. Inability of the submaximal stress test to predict the location of coronary disease. *Circulation* 47:250-56, Feb. 1973.

22 COMPLETED RESEARCH FOR 1974

369. KASCH, F.W., and others. Cardiovascular changes in middle aged men during two years of training. *Journal of Applied Physiology* 34:53-57, Jan. 1973.
370. KATCH, F.I. Optimal duration of endurance performance on the cycle ergometer in relation to maximal oxygen intake. *Ergonomics* 16:227-35, March 1973.
371. KATCH, Frank I., and others. Maximal oxygen intake, endurance running performance, and body composition of college women. *Research Quarterly* 44:301-12, Oct. 1973.
372. KATCH, Frank I., and others. Relationship between individual differences in a steady pace endurance running performance and maximal oxygen intake. *Research Quarterly* 44:206-15, May 1973.
373. KATCH, Frank I., and McARDLE, William D. Prediction of body density from simple anthropometric measurements in college-age men and women. *Human Biology* 45:445-54, Sept. 1973.
374. KATCH, Victor L. Kinetics of oxygen uptake and recovery for supra-maximal work of short duration. *Internationale Zeitschrift für Angewandte Physiologie* 31:197-207, 1973.
375. KATCH, Victor L., and KATCH, Frank I. The relationship between aerobic power and measured work-output on a progressive step increment bicycle ergometer test. *Medicine and Science in Sports* 5(1):23-27, Spring 1973.
376. KATCH, Victor L., and MICHAEL, Ernest D., Jr. The relationship between various segmental leg measurements, leg strength and relative endurance performance of college females. *Human Biology* 45:371-83, Sept. 1973.
377. KATZ, Solomon H.; RIVINUS, Heidelise; and BAKER, William. Physical anthropology and the biobehavioral approach to child growth and development. *American Journal of Physical Anthropology* 38:105-17, Jan. 1973.
378. KAVANAGH, T., and others. Intensive exercise in coronary rehabilitation. *Medicine and Science in Sports* 5(1):34-39, Spring 1973.
379. KEARNEY, J.T. Strength recovery following rhythmic or sustained exercise. *American Corrective Therapy Journal* 27:163-67, Nov.-Dec. 1973.
380. KELLER, James F.; CROAKE, James W.; and RIESENMAN, Carolyn. Relationships among handedness, intelligence, sex, and reading achievement of school age children. *Perceptual and Motor Skills* 37:159-62, Aug. 1973.
381. KELLOGG, Douglas S., Jr. Current research activities on gonorrhea at the Center for Disease Control. *Health Services Reports* 88:13-22, Jan. 1973.
382. KELLY, Richard T.; RAWSON, Harve E.; and TERRY, Roger L. Interaction effects of achievement need and situational press on performance. *Journal of Social Psychology* 89:141-45, Feb. 1973.
383. KENNER, V.H., and GOLDSMITH, W. Impact on a simple physical model of the head. *Journal of Biomechanics* 6:1-11, Jan. 1973.
384. KERR, B.A.; McKERRACHER, D.W.; and NEUFELD, M. Motor assessment of the developmentally handicapped. *Perceptual and Motor Skills* 36:139-46, Feb. 1973.
385. KETLINSKI, Randy, and PICKENS, Leon. Characteristics of male fencers in the 28th annual NCAA fencing championships. *Research Quarterly* 44:434-39, Dec. 1973.
386. KIDD, Aline H. Relation of examination scores to tobacco smoking. *Perceptual and Motor Skills* 36:946, June 1973.
387. KIEFFER, L.F., and TENNYSON, R.D. Effects of concurrent negative feedback on performance of two motor tasks. *Journal of Motor Behavior* 5:241-48, Dec. 1973.
388. KING, A.J., and others. The effects of 30% oxygen on the respiratory response to treadmill exercise in chronic respiratory failure. *Clinical Science* 44:151-62, Feb. 1973.
389. KINZIE, J. David, and others. Cross-cultural study of depressive symptoms in Hawaii. *International Journal of Social Psychiatry* 19:19-24, Spring/Summer 1973.
390. KLEIN, Karl K., and others. The effects of lateral postural balancing on gait patterns of blind subjects. *American Corrective Therapy Journal* 27(1):12-16, Jan.-Feb. 1973.
391. KLENERMAN, L., and HUTTON, W.C. A quantitative investigation of the forces applied to walking-sticks and crutches. *Rheumatology and Rehabilitation* XII:152-58, Aug. 1973.
392. KLISSOURAS, V., and others. Adaptation to maximal effort: Genetics and age. *Journal of Applied Physiology* 35:288-93, Aug. 1973.
393. KLISSOURAS, V. Genetic aspects of physical fitness. *Journal of Sports Medicine and Physical Fitness* 13:164-70, Sept. 1973.
394. KLISSOURAS, V. Prediction of potential performance with special reference to heredity. *Journal of Sports Medicine and Physical Fitness* 13:100-07, June 1973.
395. KLOETZEL, Kurt, and others. Relationship between hypertension and prolonged exposure to heat. *Journal of Occupational Medicine* 15:878-80, Nov. 1973.
396. KLOSNER, Naomi Certner, and GELLMAN, Estelle Klittnick. The effect of item arrangement on classroom test performance: Implications for content validity. *Educational and Psychological Measurement* 33:413-18, Summer 1973.

397. KNAPP, Robert R., and COMREY, Andrew L. Further construct validation of a measure of self-actualization. *Educational and Psychological Measurement* 33:419-25, Summer 1973.
398. KNAPP, Robert R., and FITZGERALD, O. Ray. Comparative validity of the logically developed versus "purified" research scales for the personal orientation inventory. *Educational and Psychological Measurement* 33:971-76, Winter 1973.
399. KNOPP, Timothy B., and TYGER, John D. A study of conflict in recreational land use: Snowmobiling vs. ski-touring. *Journal of Leisure Research* 5:6-17, Summer 1973.
400. KNUTTGEN, H.G., and SALTIN, B. Oxygen uptake, muscle high-energy phosphate, and lactate in exercise under acute hypoxic conditions in man. *Acta Physiologica Scandinavica* 87:368-76, March 1973.
401. KOCH, G., and ERIKSSON, B.O. Effect of physical training on pulmonary ventilation and gas exchange during submaximal and maximal work in boys aged 11 to 13 years. *Scandinavian Journal of Clinical and Laboratory Investigation* 31:87-94, Jan. 1973.
402. KOERNER, Donald R. Cardiovascular benefits from an industrial physical fitness program. *Journal of Occupational Medicine* 15:700-07, Sept. 1973.
403. KOHLER, L. Health control of four-year-old children. *Acta Paediatrica Scandinavica Supplement* 235:1-28, 1973.
404. KOLLIAS, James, and others. Cardiorespiratory responses of young overweight women to ergometry following modest weight reduction. *Archives of Environmental Health* 27:61-64, Aug. 1973.
405. KOMI, Paavo V.; KLISSOURAS, Vassilis; and KARVINEN, Esko. Genetic variation in neuromuscular performance. *Internationale Zeitschrift für Angewandte Physiologie* 31:289-304, 1973.
406. KONTUREK, S.J., and others. Effect of exercise on gastrointestinal secretions. *Journal of Applied Physiology* 34:324-28, March 1973.
407. KONZ, Stephan; DEY, Sunil; and BENNET, Corwin. Forces and torques in lifting. *Human Factors* 15:237-45, June 1973.
408. KOONOW, Ralph L.; HOLPER, Harvey, M.; and GITTER, A. George. More on the reactive effects of pretesting in attitude research: Demand characteristics or subject commitment? *Educational and Psychological Measurement* 33:7-17, Spring 1973.
409. KOTCHEN, T.A., and others. Renin, noradrenaline and adrenaline responses to simulated altitude. *Clinical Science* 44:243-51, March 1973.
410. KRAUSE, Merton S. Opinion change associated with dissonance and deviance. *Educational and Psychological Measurement* 33:823-35, Winter 1973.
411. KROLL, Walter. Effects of local muscular fatigue due to isotonic and isometric exercise upon fractionated reaction time components. *Journal of Motor Behavior* 5:73-80, June 1973.
412. KRUMHOLZ, Richard A., and HEDRICK, Elvin C. Pulmonary function differences in normal smoking and nonsmoking, middle-aged, white collar workers. *American Review of Respiratory Disease* 107:225-38, Feb. 1973.
413. KUBIK, M. Michael, and BHOWMICK, B.K. Myocardial infarction and oral contraceptives. *British Heart Journal* 35:1271-74, Dec. 1973.
414. KUPFER, David J., and others. A comment on the "amotivational syndrome" in marijuana smokers. *American Journal of Psychiatry* 130:1319-22, Dec. 1973.
415. KVALSETH, Tarald O. Pitts' law for manipulative temporal motor responses with and without path constraints. *Perceptual and Motor Skills* 37:427-31, Oct. 1973.
416. LAABS, Gerald. Retention characteristics of different reproduction cues in motor short-term memory. *Journal of Experimental Psychology* 100(1):168-77, Sept. 1973.
417. LAGASSE, P.P., and HAYES, K.C. Premotor and motor reaction time as a function of movement extent. *Journal of Motor Behavior* 5:25-32, March 1973.
418. LAISI, V. and others. Growth hormone and cortisol secretion in man. *Acta Physiologica Scandinavica* 89:192-97, Oct. 1973.
419. LAMID, Sofjan, and WOLFF, Fredrick W. Drug failure in reducing pressor effect of isometric handgrip stress test in hypertension. *American Heart Journal* 86:211-15, Aug. 1973.
420. LANE, N.J., and GAGE, P.W. Effects of tiger snake venom on the ultrastructure of motor nerve terminals. *Nature-New Biology* 244:94-96, July 1973.
421. LANGFORD, Nell; HALL, Robert; and MONTY, Richard. Cutaneous perception of a track produced by a moving point across the skin. *Journal of Experimental Psychology* 97(1):59-63, Jan. 1973.
422. LAPIN, Eugene S., and others. Changes in maximal exercise performance in the evaluation of saphenous vein bypass surgery. *Circulation* 47:1164-73, June 1973.
423. LEBOVITS, Binyamin, and others. Cigarette smoking and personality. *Journal of Chronic Diseases* 25:581-98, Nov. 1972.

24 COMPLETED RESEARCH FOR 1974

424. LERNER, R.M., and others. Relations among physical attractiveness, body attitudes, and self-concept in male and female college students. *Journal of Psychology* 85:119-30, Sept. 1973.
425. LESIAK, W.J. Screening primary-grade children for educational handicaps: A teacher administered battery. *Psychology in the Schools* 10:88-100, Jan. 1973.
426. LESNIAK, M.A. Human growth hormone radioceptor assay using cultured human lymphocytes. *Nature-New Biology* 241:20-22, Jan. 1973.
427. LESTER, Barry M., and KLEIN, Robert E. The effect of stimulus familiarity on the conservation performance of rural Guatemalan children. *Journal of Social Psychology* 90:197-205, Aug. 1973.
428. LEUCHTENBURGER, C.; LEUCHTENBURGER, R.; and SCHNEIDER, A. Effects of marijuana and tobacco smoke on human lung physiology. *Nature* 241:137-39, Jan. 12, 1973.
429. LEVENGOOD, Robert; LOWINGER, Paul; and SCHOOFF, Kenneth. Heroin addiction in the suburbs — An epidemiologic study. *American Journal of Public Health* 63:209-14, March 1973.
430. LEVIN, I.P., and others. Response scale effects and integration processes in the averaging of motor movements. *Journal of Motor Behavior* 5:1-8, March 1973.
431. LEVINE, Peter N. An acute effect of cigarette smoking on platelet function: A possible link between smoking and arterial thrombosis. *Circulation* 48:619-23, Sept. 1973.
432. LEVY, J.V.; COHEN, J.A.; and INESI, G. Contractile effects of a calcium ionosphere. *Nature* 242:461-63, April 13, 1973.
433. LEWIN, T., and JONSSON, B. Some somatometric data on Swedish females aged 15-70 years. Part I: A population study with special reference to secular and age changes. *Acta Morphologica Neerlando-Scandinavica* 11:175-86, Oct. 1973.
434. LEWIN, T., and JONSSON, B. Some somatometric data on Swedish females aged 15-70 years. Part II: Measurements including soft tissue variations, a population study with special references to secular and age changes. *Acta Morphologica Neerlando-Scandinavica* 11:187-96, Oct. 1973.
435. LEWIS, P.J.; ARCHER, D.F.J.; and BRECKENRIDGE, A. Simultaneous onset of malignant hypertension in identical twins. *British Heart Journal* 35:344-46, March 1973.
436. LIND, Alexander R. Prediction of safe limits for prolonged occupational exposure to heat. *Federation Proceedings* 32:1602-06, May 1973.
437. LINDQUIST, Valdemar A.Y.; SPANGLER, Richard D.; and BLOUNT, S. Gilbert. A comparison between the effects of dynamic and isometric exercises as evaluated by the systolic time intervals in normal man. *American Heart Journal* 85:227-36, Feb. 1973.
438. LIPSKI, Janet; STIMMEL, Barry; and DONOSO, Ephraim. The effect of heroin and multiple drug abuse on the electrocardiogram. *American Heart Journal* 86:663-68, Nov. 1973.
439. LISKA, Allen E. Causal structures underlying the relationship between delinquency involvement and delinquent peers. *Sociology and Social Research* 58:23-36, Oct. 1973.
440. LITTLE, Mildred J. Observations on the flexed-arm hang test for women. *Perceptual and Motor Skills* 36:761-62, June 1973.
441. LITTLEJOHNS, A.W.; ASSEM, E.S.K.; and KENNEDY, C.T.C. Immunological evidence of two forms of allergy to pyrazolone drugs. *Rheumatology and Rehabilitation* XII:57-61, May 1973.
442. LLOYD, A.J., and VOOR, J.H. The effect of training on performance efficiency during a competitive isometric exercise. *Journal of Motor Behavior* 5:17-24, March 1973.
443. LOMAEV, O., and ALLEN, J.G. Prediction of adult aerobic capacity from childhood tests. *Ergonomics* 16:783-85, Nov. 1973.
444. LONDEREE, B.R. Validation of the oxygen consumption computer. *Medicine and Science in Sports* 5:187-90, Fall 1973.
445. LOOCKERMAN, W.D. A comparison of the open and closed foot stance for reaction and movement times. *Journal of Motor Behavior* 5:57-63, March 1973.
446. LOY, John A. Social origins and occupational mobility patterns of a selected sample of American athletes. *International Review of Sport Sociology* 7:5-25, 1972.
447. LUNDBERGH, P., and STRANDELL, T. The effects of physical exercise on the wedged and free hepatic venous pressure in normal men. *Acta Medica Scandinavica* 194:211-14, Sept. 1973.
448. LUNDQUIST, F., and others. Utilization of acetate in the human forearm during exercise after ethanol injection. *Journal of Clinical Investigation* 52:3231-35, Dec. 1973.
449. MacKAY, W.A., and others. Response of frog muscle spindle system to whole-muscle input parameters. *American Journal of Physiology* 224:1037-43, May 1973.
450. MacQUEEN, A.G. Contraception and community health. *Royal Society of Health Journal* 92:202-03, Aug. 1972.
451. MACREADY, George B., and MERWIN, Jack C. Homogeneity within item forms in domain referenced testing. *Educational and Psychological Measurement* 33:351-60, Summer 1973.
452. MACY, Daniel J. Effect of verbal praise and reproof on balance board performance of college males and females. *Perceptual and Motor Skills* 37:488, Oct. 1973.

453. MAEHLUM, S., and PRUETT, Esther D.R. Muscular exercise and metabolism in male juvenile diabetics. II. Glucose tolerance. *Scandinavian Journal of Clinical and Laboratory Investigation* 32:149-53, Oct. 1973.
454. MAGILL, R.A. The post K-R interval: Time and activity effects and the relationship of motor short-term memory theory. *Journal of Motor Behavior* 5:49-56, March 1973.
455. MALAMUD, Bernard. Gravity model calibration of tourist travel to Las Vegas. *Journal of Leisure Research* 5:23-33, Fall 1973.
456. MALHIEU, Mireille, and DUCHARME, Raymond. Variations de la fréquence cardiaque du rat albinos au cours de l'établissement d'un conditionnement opérant. *Canadian Journal of Psychology* 27:334-42, Sept. 1973.
457. MALHOTRA, S.L. In search of causes of ischaemic heart disease. *British Heart Journal* 35:17-23, Jan. 1973.
458. MALINA, R.M., and others. Age at menarche in athletes and nonathletes. *Medicine and Science in Sports* 5(1):11-13, Spring 1973.
459. MALINA, Robert M., and GORZYCH, Pamela A. Height and weight growth patterns of school age deaf children. *American Journal of Physical Anthropology* 38:135-43, Jan. 1973.
460. MANKIN, H.J. Biochemical and metabolic abnormalities in osteoarthritic human cartilage. *Federal Proceedings* 32:1478-80, April 1973.
461. MANWANI, A.H., and AGARWAL, K.N. The growth pattern of Indian infants during the first year of life. *Human Biology* 45:341-49, Sept. 1973.
462. MARCUS, P. Some effects of cooling and heating areas of the head and neck on body temperature measurement at the ear. *Aerospace Medicine* 44:397-402, April 1973.
463. MARCUS, P. Some effects of radiant heating of the head on body temperature measurements at the ear. *Aerospace Medicine* 44:403-06, April 1973.
464. MARKS, Lawrence E., and STEVENS, Joseph C. Perceived cold and skin temperature as functions of stimulation level and duration. *American Journal of Psychology* 85:407-19, Sept. 1972.
465. MARSELLA, Anthony J.; WALKER, Elaine; and JOHNSON, Frank. Personality correlates of depressive disorders in female college students of different ethnic groups. *International Journal of Social Psychiatry* 19:77-81, Spring/Summer 1973.
466. MARTENIUK, R.G. Retention characteristics of motor short term memory cues. *Journal of Motor Behavior* 5:249-58, Dec. 1973.
467. MARX, Melvin H.; WITTER, David W.; and FARBRY, John. Greater repetition of errors under performance compared to observation in multiple-choice human learning. *Perceptual and Motor Skills* 37:949-50, Dec. 1973.
468. MASTER, Arthur M. Cardiac arrhythmias elicited by the two-step exercise test. *American Journal of Cardiology* 32:766-71, Nov. 1973.
469. MATHIASSEN, Mogens Stenfeldt. Determination of bone age and recording of minor skeletal hand anomalies in normal children. *Danish Medical Bulletin* 20:80-85, June 1973.
470. MATTHEW, Earl B., and others. A major epidemic of infectious hepatitis in an institution for the mentally retarded. *American Journal of Epidemiology* 98:199-215, Sept. 1973.
471. MAXWELL, Leo C.; FAULKNER, John A.; and LIEBERMAN, David A. Histochemical manifestations of age and endurance training in skeletal muscle fibers. *American Journal of Physiology* 224:356-61, Feb. 1973.
472. MAY, Richard B., and DUNCAN, Pam. Facilitation on a response-loaded task by changes in task difficulty. *Perceptual and Motor Skills* 36:123-29, Feb. 1973.
473. MAYHEW, J.L. Learning effect in skinfold measurement. *Journal of Physical Education* 71:5-6, 22-23, Sept.-Oct. 1973.
474. McARDLE, W.D.; KATCH, F.I.; and PECHAR, G.S. Comparison of continuous and discontinuous treadmill and bicycle tests for max $\dot{V}O_2$. *Medicine and Science in Sports* 5:156-60, Fall 1973.
475. McARDLE, William D., and others. Percentile norms for a valid step test in college women. *Research Quarterly* 44:498-500, Dec. 1973.
476. McCLELLAND, David C., and WATSON, Robert I. Power motivation and risk-taking behavior. *Journal of Personality* 41:121-39, March 1973.
477. McCLOSKEY, D.I. The effects of pre-existing loads upon detection of externally applied resistances to breathing in man. *Clinical Science and Molecular Medicine* 45:561-64, Oct. 1973.
478. McGARRY, J.M. Sterilization in the male and female. *Royal Society of Health Journal* 92:207-10, Aug. 1972.
479. McGUIRE, William L. Estrogen receptors in human breast cancer. *Journal of Clinical Investigation* 52:73-77, Jan. 1973.
480. McKENNA, W.J., and others. Oscillation mechanics of the submerged respiratory system. *Aerospace Medicine* 44:324-26, March 1973.

26 COMPLETED RESEARCH FOR 1974

481. McLACHLAN, T. Health foods — A public analyst's view. *Royal Society of Health Journal* 92:57-62, April 1972.
482. McLAUGHLIN, Martha; NEWARK, Del; and STOPPS, Gordon J. Smoking and lead. *Archives of Environmental Health* 26:131-36, March 1973.
483. McLEOD, P.D. Interference of "attend to and learn" tasks with tracking. *Journal of Experimental Psychology* 99:330-33, Aug. 1973.
484. McMAHON, F. Gilbert; COLE, Phillip A.; and RYAN, Jerome R. A study of hypertension in the inner city. A student hypertension survey. *American Heart Journal* 85:65-71, Jan. 1973.
485. MEDVED, R., and PAVISIL-MEDVED, V. Causes of injuries during the practical classes on physical education in schools. *Journal of Sports Medicine and Physical Fitness* 13:32-41, March 1973.
486. MEHMEL, H.C., and others. Isovolumic contraction dynamics in man according to two different muscle models. *Journal of Applied Physiology* 33:409-14, Oct. 1972.
487. MEIKLE, Stewart; LONSBURY, Brenda; and GERRITSE, Richard. Factor analysis of the motor steadiness battery. *Perceptual and Motor Skills* 36:779-83, June 1973.
488. METTLIN, Curt. Smoking as behavior: Applying a social psychological theory. *Journal of Health and Social Behavior* 14:144-52, June 1973.
489. MEWHORT, D.J.K. Retrieval tags and order of report in dichotic listening. *Canadian Journal of Psychology* 27:119-26, June 1973.
490. MILLAR, W.S., and SCHAFFER, H.R. Visual-manipulative response strategies in infant operant conditioning with spatially displaced feedback. *British Journal of Psychology* 64:545-52, Nov. 1973.
491. MILLER, G.J., and others. Cardio-pulmonary responses and gas exchange during exercise in adults with homozygous sickle cell disease (sickle cell anemia). *Clinical Science* 44:113-28, Feb. 1973.
492. MILLWARD, D.J., and others. Relationship between protein synthesis and RNA content in skeletal muscles. *Nature* 241:204-05, Jan. 19, 1973.
493. MILNER-BROWN, H.S.; STEIN, R.B.; and YEMM, R. The contractile properties of human motor units during voluntary isometric contractions. *Journal of Physiology* 228:285-306, Jan. 1973.
494. MISHARA, Brian L., and others. Kinesthetic figural aftereffects: Norms from four samples, and a comparison of methods for classifying augmenters, moderates, and reducers. *Perceptual and Motor Skills* 37:315-25, Aug. 1973.
495. MISNER, J.E.; MASSEY, B.H.; and WILLIAMS, B.T. The effects of physical training on the response of serum enzymes to exercise stress. *Medicine and Science in Sports* 5(2):86-88, Summer 1973.
496. MOGULL, Robert G. Football salaries and race: Some empirical evidence. *Industrial Relations* 12:109-12, Feb. 1973.
497. MOLE, P.A., and others. Enzymatic pathways of pyruvate metabolism in skeletal muscle: Adaptations to exercise. *American Journal of Physiology* 224:50-54, Jan. 1973.
498. MOLEN, N.H. Energy/speed relation of below-knee amputees walking on a motor driven treadmill. *Internationale Zeitschrift für Angewandte Physiologie* 31:173-85, 1973.
499. MOLL, J.M.H., and WRIGHT, V. The pattern of chest and spinal mobility in ankylosing spondylitis. *Rheumatology and Rehabilitation* XII:115-33, Aug. 1973.
500. MOINAR, Sandor; WILEY, Jack F.; and CURETON, Thomas K. Prediction of endurance performance and oxygen consumption from cardiac time components. *Research Quarterly* 44:278-89, Oct. 1973.
501. MOORE, Condict, and TITTLE, Paul W. Muscle activity, body fat, and induced rat mammary tumors. *Surgery* 73:329-32, March 1973.
502. MORAWSKI, Janusz M. Control systems approach to a ski-turn analysis. *Journal of Biomechanics* 6:267-79, May 1973.
503. MORGAN, Sherry Ward, and MANNES, Bernard. Behavioral and fantasied indicators of avoidance of success in men and women. *Journal of Personality* 41:457-70, Sept. 1973.
504. MORGAN, William P. Psychological factors influencing perceived exertion. *Medicine and Science in Sports* 5(2):97-103, Summer 1973.
505. MORI, S. Discharge patterns of solens motor units with associated changes in force exerted by foot during quiet stance in man. *Journal of Neurophysiology* 36:458-71, May 1973.
506. MORRIS, J.N., and others. Vigorous exercise in leisure-time and the incidence of coronary heart-disease. *Lancet* 1:333-39, Feb. 1973.
507. MORRISON, J.B. Oxygen uptake studies of divers when fin swimming with maximum effort at depths of 6-176 feet. *Aerospace Medicine* 44:1120-29, Oct. 1973.
508. MOSKOWITZ, Herbert, and BURNS, Marcelline. Alcohol effects on information processing time with an overlearned task. *Perceptual and Motor Skills* 37:835-39, Dec. 1973.

509. MUMFORD, J.M.; NEWTON, A.V.; and LEY, P. Personality, pain perception and pain tolerance. *British Journal of Psychology* 64:105-08, Feb. 1973.
510. MURRAY, A.J., and HITCHCOCK, C.H. The nature of the memory deficit in Korsakoff's psychosis. *Canadian Journal of Psychology* 27:414-21, Dec. 1973.
511. MURRAY, C. Relationship between social deprivation and aspects of psychomotor performance in middle adolescence. *British Journal of Preventive and Social Medicine* 27:177-81, Aug. 1973.
512. MURRAY, M. Patricia, and PETERSON, Ron M. Weight distribution and weight-shifting activity during normal standing posture. *Physical Therapy* 53:741-48, July 1973.
513. NAGAO, N., and SAWADA, Y. A kinematic analysis in golf swing concerning driver shot and No. 9 iron shot. *Journal of Sports Medicine and Physical Fitness* 13:4-16, March 1973.
514. NAGEL, R.J., and DIESPECKER, D.D. Reactions to a speedometer under two driving conditions. *Perceptual and Motor Skills* 36:409-10, April 1973.
515. NANDA, Ram S. Fluoride content of north Indian foods. *Indian Journal of Medical Research* 60:1470-82, Oct. 1972.
516. NELSON, Jack K., and JOHNSON, Barry L. Effects of local and general fatigue on static balance. *Perceptual and Motor Skills* 37:615-18, Oct. 1973.
517. NELSON, Ralph A., and others. Physiology and natural history of obesity. *Journal of the American Medical Association* 223:627-30, Feb. 5, 1973.
518. NESTEL, Paul J.; SCHREIBMAN, Paul H.; and AHRENS, E.H., Jr. Cholesterol metabolism in human obesity. *Journal of Clinical Investigation* 52:2389-97, Oct. 1973.
519. NEWELL, K.M. Flight feedback and learning a projective task. *Journal of Motor Behavior* 5:65-72, June 1973.
520. NOBLE, B.J., and others. Perceptual responses to exercise: A multiple regression study. *Medicine and Science in Sports* 5(2):104-09, Summer 1973.
521. NOBLE, Bruce J., and others. Perceived exertion during walking and running. *Medicine and Science in Sports* 5(2):116-20, Summer 1973.
522. NOBLE, Larry, and McCRAW, Lynn W. Comparative effects of isometric and isotonic training programs on relative-load endurance. *Research Quarterly* 44:96-108, March 1973.
523. NOE, Francis P. Coaches, players and pain. *International Review of Sport Sociology* 9:47-61, 1973.
524. NORRIE, Mary Lou. Effect of size of standard on amount of constant error for kinaesthetically monitored force reproduction. *Perceptual and Motor Skills* 37:936-38, Dec. 1973.
525. NORRIE, Mary Lou. Length of standard presentation and constant error in kinaesthetically monitored reproduction. *Perceptual and Motor Skills* 37:923-26, Dec. 1973.
526. NOVAK, L.P.; TAUXE, W.N.; and ORVIS, A.L. Estimation of total body potassium in normal adolescents by whole-body counting: Age and sex differences. *Medicine and Science in Sports* 5:147-55, Fall 1973.
527. NOVAK, Ladislav; BIERBAUM, M.; and MELLEROWICZ, H. Maximal oxygen consumption, pulmonary function, body composition and anthropometry of adolescent female athletes. *Internationale Zeitschrift für Angewandte Physiologie* 31:103-19, 1973.
528. NOVIKOV, A.D., and MAXIMENKO, A.M. The influence of selected socio-economic factors on the level of sports achievements in various countries. *International Review of Sport Sociology* 7:27-44, 1972.
529. O'HANLON, James F., and HORVATH, Steven M. Neuroendocrine, cardiorespiratory, and performance reactions of hypoxic men during a monitoring task. *Aerospace Medicine* 44:129-34, Feb. 1973.
530. O'KEEFE, Edward J. Comparison of high- and low-impulse groups on two tests of motor inhibition. *Perceptual and Motor Skills* 37:435-41, Oct. 1973.
531. PANDOLF, Kent B., and NOBLE, Bruce J. The effects of pedaling speed and resistance changes on perceived exertion for equivalent power outputs on the bicycle ergometer. *Medicine and Science in Sports* 5(2):132-36, Summer 1973.
532. PARIJS, Jan, and others. Moderate sodium restriction and diuretics in the treatment of hypertension. *American Heart Journal* 85:22-34, Jan. 1973.
533. PARK, Roberta J. Education as a concern of the state: Physical education national plans for education in France, 1763-1795. *Research Quarterly* 44:331-45, Oct. 1973.
534. PARK, Roberta J. Stephanie-Felicite du Crest la comtesse de Genlis (1746-1831) early female proponent of physical education. *Research Quarterly* 44:34-45, March 1973.
535. PARKE, Dennis V. Drug interaction. *Royal Society of Health Journal* 92:65-68, April 1972.
536. PARKER, Nancy. Influence of induced muscular tension on a time estimation motor task. *Journal of Motor Behavior* 5:111-20, June 1973.
537. PARTON, David A., and SIEBOLD, James R. Stimulus-response similarity and children's matching performance. *Perceptual and Motor Skills* 37:491-94, Oct. 1973.

28 COMPLETED RESEARCH FOR 1974

538. PAULEY, P.E. Cardiac rate and ventilatory volume rate reactions to muscle contraction in man. *Journal of Applied Physiology* 34:578-83, May 1973.
539. PAVELKA, K., and others. Double-blind comparisons of ibuprofen and phenylbutazone in the short term treatment of rheumatoid arthritis. *Rheumatology and Rehabilitation* XII:68-73, May 1973.
540. PEDDE, Lawrence D. Hand tremor, hand strength and level of endurance as related to task efficiency. *Government Reports Announcements* (Abstract) AD 761 017 (Available only from NTIS) 73:62, July 25, 1973.
541. PEFLEY, Richard K.; ABEL, Joseph F.; and DUTTON, John S. Physiological effects of low ventilation rates, high temperatures and high humidities. *Government Reports Announcements* (Abstract) AD 753 843 (Available only from NTIS) 73:46-47, Feb. 1973.
542. PETERSEN, M.R., and others. Ventilatory capacity in normal coal mines prediction formula for FEV₁ and FVC. *Journal of Occupational Medicine* 15:899-902, Nov. 1973.
543. PETERSON, George L., and others. Children's choice of playground equipment. *Journal of Applied Psychology* 58:233-38, Oct. 1973.
544. PFAUDLER, Marjorie. After stroke motor skill rehabilitation for hemiplegics. *American Journal of Nursing* 73:1892-96, Nov. 1973.
545. PHILP, John R., and others. Infectious hepatitis outbreak with mai tai as the vehicle of transmission. *American Journal of Epidemiology* 97:50-54, Jan. 1973.
546. PIERSON, William R. Intellectual performance during prolonged exposure to noise and mild hypoxia. *Aerospace Medicine* 44:723-24, July 1973.
547. PINEL, John, and MUCHA, R.F. Activity and reactivity in rats at various intervals after footshock. *Canadian Journal of Psychology* 27:112-18, March 1973.
548. PINES, Wayne L. New regulations on vitamins A and D. *FDA Consumer* (Papers) 7:14-16, Oct. 1973.
549. PINES, Wayne L. New restriction on diet pills. *FDA Consumer* (Papers) 7:18-19, April 1973.
550. PIRNAY, F., and others. Exercise during hyperoxia and hyperbaric oxygenation. *Internationale Zeitschrift für Angewandte Physiologie* 31:259-68, April 1973.
551. PISHKIN, Vladimir. Electromyography in cognitive performance by schizophrenics and normals. *Perceptual and Motor Skills* 37:382, Oct. 1973.
552. PLUTCHIK, Robert; CONTE, Hope; and WEINER, M. Bakur. Studies of body image. II. Dollar value of body parts. *Journal of Gerontology* 28:89-91, Jan. 1973.
553. POGGIO, John P., and GLASNAPP, Douglas R. Content-sampling as an evaluation and research technique. *Educational and Psychological Measurement* 33:903-08, Winter 1973.
554. POLLACK, D., and VALDEZ, H. Developmental aspects of sexuality and aggression. *Journal of Genetic Psychology* 123:179-84, Dec. 1973.
555. POOVATHUMKAL, C.K. Community mental health ideology scale standing of para-professionals. *Community Mental Health Journal* 9:108-15, Summer 1973.
556. POSSAMAI, Camille-Aimé, and others. Sequential effects related to foreperiod duration in simple reaction time. *Perceptual and Motor Skills* 36:1185-86, June 1973.
557. POWELL, Graham E. Negative and positive mental practice in motor skill acquisition. *Perceptual and Motor Skills* 37:312, Aug. 1973.
558. PRAHL-ANDERSEN, Birte, and KOWALSKI, Charles J. A mixed longitudinal, interdisciplinary study of the growth and development of Dutch children. *Growth* 37:281-95, Sept. 1973.
559. PRESTON, F.S., and others. Effects of flying and of time changes on menstrual cycle length and on performance of airline stewardesses. *Aerospace Medicine* 44:438-43, April 1973.
560. PRICE, Judy M., and GRINKER, Joel. Effects of degree of obesity, food deprivation, and palatability on eating behavior of humans. *Journal of Comparative and Physiological Psychology* 85:265-71, Nov. 1973.
561. PROVINS, K.A.; GLENCROSS, D.G.; and COOPER, C.J. Thermal stress and arousal. *Ergonomics* 16:623-31, Sept. 1973.
562. PRUETT, Esther D.R., and MAEHLUM, S. Muscular exercise and metabolism in male juvenile diabetics. I. Energy metabolism during exercise. *Scandinavian Journal of Clinical and Laboratory Investigation* 32:139-47, Oct. 1973.
563. PURETZ, Donald H. Chronic effects of long term cigarette smoke inhalation upon the development of oxygen debt capacity in albino mice. *Research Quarterly* 44:397-403, Dec. 1973.
564. QUERY, William T., and QUERY, Joy M. Birth order: Urban-rural effects on need affiliation and school activity participation among high school male students. *Journal of Social Psychology* 90:317-20, Aug. 1973.
565. QUIN, C.E. Paralysis and arthropathy in herpes zoster. *Rheumatology and Rehabilitation* XII:74-76, May 1973.

566. RAJALAKSHMI, R., and others. The effects of supplements varying in carotene and calcium content on the physical, biochemical and skeletal status of preschool children. *British Journal of Nutrition* 30:77-86, July 1973.
567. RAMLEY, M.R. Significance of angular momentum in long jumping. *Research Quarterly* 44:488-97, Dec. 1973.
568. RANKIN, Elaine. The problem of birth control. *Royal Society of Health Journal* 92:81-84, April 1972.
569. RAVEN, Peter B., and others. Indirect calorimetric estimation of specific tasks of aluminum smelter workers. *Journal of Occupational Medicine* 15:894-98, Nov. 1973.
570. RAYNAUD, J., and others. Oxygen delivery and oxygen return to the lungs at onset of exercise in man. *Journal of Applied Physiology* 35:259-62, Aug. 1973.
571. REED, Alfred T., and others. Effects of prepubertal forced exercise upon postpubertal organ and body weights. *Research Quarterly* 44:470-82, Dec. 1973.
572. REFSUM, H.E.; MEEN, H.D.; and STROMME, S.B. Whole blood, serum and erythrocyte magnesium concentrations after repeated heavy exercise of long duration. *Scandinavian Journal of Clinical and Laboratory Investigation* 32:123-27, Oct. 1973.
573. REMINGTON, Robert J. Sequential effects analysis of choice reaction error data. *Perceptual and Motor Skills* 36:1211-16, June 1973.
574. RENNER, John A., and RUBIN, Mark L. Engaging heroin addicts in treatment. *American Journal of Psychiatry* 130:976-80, Sept. 1973.
575. REQUIN, Jean, and others. Effects of a timing signal on simple reaction time with a rectangular distribution of foreperiods. *Quarterly Journal of Experimental Psychology* 25:344-53, Aug. 1973.
576. REYNOLDS, Michael D., and ABDOL, Nabih I. Comparative study of the in vitro proliferative responses of blood and synovial fluid leukocytes of rheumatoid arthritis patients. *Journal of Clinical Investigation* 52:1627-31, July 1973.
577. RICE, M.J. Supercontracting striated muscle in a vertebrate. *Nature* 243:238-40, May 25, 1973.
578. RIPA, M.D., and MAKSIMENKO, A.M. Physical education and sport in the life of urban school youth. *International Review of Sport Sociology* 9:35-46, 1973.
579. RIVENES, Richard S. An improved stabilometer task apparatus. *Research Quarterly* 44:383-85, Oct. 1973.
580. RIVIERE, Michael S. The use of Columbia Mental Maturity Scale with institutionalized mentally retarded children. *Educational and Psychological Measurement* 33:993-95, Winter 1973.
581. ROBINSON, S., and others. Training and physiological aging in men. *Federation Proceedings* 32:1628-34, May 1973.
582. RODE, Andris, and SHEPARD, R.J. Fitness of the Canadian Eskimo — The influence of season. *Medicine and Science in Sports* 5:170-73, Fall 1973.
583. RODE, Andris, and SHEPARD, R.J. Growth, development and fitness of the Canadian Eskimo. *Medicine and Science in Sports* 5:161-69, Fall 1973.
584. ROGERS, T.B. Ratings of content as a means of assessing personality items. *Educational and Psychological Measurement* 33:845-58, Winter 1973.
585. ROHMERT, W., and others. Heart rate variability and work-load measurement. *Ergonomics* 16:33-44, Jan. 1973.
586. ROHRBACHER, Richard. Influence of a special camp program for obese boys on weight loss, self-concept, and body image. *Research Quarterly* 44:150-57, May 1973.
587. ROMSA, Gerald H. A method of deriving outdoor recreational activity packages. *Journal of Leisure Research* 5:34-46, Fall 1973.
588. ROSEN, Kenneth, and others. Chronic heart block in adults. *Archives of Internal Medicine* 131:663-72, May 1973.
589. ROSENTHWIG, Joel, and HERNDON, Daisy. Perceptual-motor ability and intellectual ability of kindergarten age children. *Perceptual and Motor Skills* 37:583-86, Oct. 1973.
590. ROSS, William D., and WILSON, Barry D. A somatotype dispersion index. *Research Quarterly* 44:372-74, Oct. 1973.
591. ROTHMAN, Kenneth, and KELLER, Andrew. The effect of joint exposure to alcohol and tobacco on risk of cancer of the mouth and pharynx. *Journal of Chronic Diseases* 25:711-16, Dec. 1972.
592. ROTHSTEIN, Anne L. Effect on temporal expectancy of the position of a selected foreperiod within a range. *Research Quarterly* 44:132-39, May 1973.
593. ROUSSEAU, Michel F.; BRASSEUR, Lucien A.; and DETRY, Jean-Marie. Hemodynamic determinants of maximal oxygen intake in patients with healed myocardial infarction: Influence of physical training. *Circulation* 48:943-49, Nov. 1973.
594. RUBEN, Frederick L., and others. Protection with split and whole virus vaccines against influenza. *Archives of Internal Medicine* 132:568-71, Oct. 1973.

30 COMPLETED RESEARCH FOR 1974

595. RUBINGTON, Earl. Informal organization of psychiatric patients. *International Journal of Social Psychiatry* 18:287-300, Winter 1972-73.
596. RUDMAN, Daniel, and others. Diurnal variation in the responsiveness of human subjects to human growth hormone. *Journal of Clinical Investigation* 52:912-18, April 1973.
597. RUDMAN, Daniel; PATTERSON, Joseph H., and GIBBAS, Donna L. Responsiveness of growth hormone-deficient children to human growth hormone. Effect of replacement therapy for one year. *Journal of Clinical Investigation* 52:1108-12, May 1973.
598. RUMMEL, John A.; MICHEL, Edward L.; and BERRY, Charles A. Physiological response to exercise after space flight - Apollo 7 to Apollo 11. *Aerospace Medicine* 44:235-38, March 1973.
599. RUSSEL, M.A.H.; COLE, P.V., and BROWN, E. Absorption by non-smokers of carbon monoxide from room air polluted by tobacco smoke. *Lancet* 1:576-79, March 1973.
600. RUTISHAUSER, Ingrid H.E., and FROOD, J.D.I. The effect of a traditional low-fat diet on energy and protein intake, serum albumin concentration and body-weight in Ugandan preschool children. *British Journal of Nutrition* 29:261-68, March 1973.
601. SAAR, Elzbieta. Competitive sport as a factor in social migration processes. *International Review of Sport Sociology* 7:133-44, 1972.
602. SABOURIN, Michel, and DUCHARME, Raymond. L'activité instrumentale de thermorégulation et le rythme cardiaque du rat albinos. *Canadian Journal of Psychology* 27:103-11, March 1973.
603. SAGE, George H. Occupational socialization and value orientation of athletic coaches. *Research Quarterly* 44:269-77, Oct. 1973.
604. SAGE, George H., and BENNETT, Bonnie. The effects of induced arousal on learning and performance of a pursuit motor skill. *Research Quarterly* 44:140-49, May 1973.
605. SALANS, Lester B.; CUSHMAN, Samuel W.; and WEISMANN, Rodger E. Studies of human adipose tissue. Adipose cell size and number in nonobese and obese patients. *Journal of Clinical Investigation* 52:929-41, April 1973.
606. SALTIN, B. Metabolic fundamentals in exercise. *Medicine and Science in Sports* 4:137-46, Fall 1973.
607. SAND, Patricia L., and TAYLOR, Neal. Handedness: Evaluation of binomial distribution hypothesis in children and adults. *Perceptual and Motor Skills* 36:1343-46, June 1973.
608. SANDERS, A.F., and WERTHEIM, A.H. The relation between physical stimulus properties and the effect of foreperiod duration on reaction time. *Quarterly Journal of Experimental Psychology* 25:201-06, May 1973.
609. SARAN, C. Biomechanical evaluation of T-handles for a pronation supination task. *Journal of Occupational Medicine* 15:712-16, Sept. 1973.
610. SARASON, Irwin G. Test anxiety and social influence. *Journal of Personality* 41:261-71, June 1973.
611. SARVIHARJU, P.J. Effect on physical exercise on the urinary excretion. *Journal of Sports Medicine and Physical Fitness* 13:171-76, Sept. 1973.
612. SCHEER, John K. Effect of placement in the order of competition on scores of Nebraska high school students. *Research Quarterly* 44:79-85, March 1973.
613. SCHEUER, James. Physical training and intrinsic cardiac adaptations. *Circulation* 47:677-80, April 1973.
614. SCHLEIN, E.M., and others. Effect of plasma water loss on assessment of muscle metabolism during exercise. *Journal of Applied Physiology* 34:568-72, May 1973.
615. SCHLUEDERBERG, Ann, and others. Measles immunity in children vaccinated before one year of age. *American Journal of Epidemiology* 97:402-09, June 1973.
616. SCHMIDT, Richard J., and ROYER, Ford M. Telemetered heart rates recorded during Karate Katas: A case study. *Research Quarterly* 44:501-05, Dec. 1973.
617. SCHOENFELD, Lawrence S., and MILLER, Sheldon I. The Navajo Indian: A descriptive study of the psychiatric population. *International Journal of Social Psychiatry* 19:31-37, Spring/Summer 1973.
618. SCHREIBER, Mary L. Anaerobic capacity as a function of somatotype and participation in varsity athletics. *Research Quarterly* 44:197-205, May 1973.
619. SCHROEDER, David J. Effects of alcohol on nystagmus and tracking performance during laboratory angular accelerations about the Y and Z axes. *Aerospace Medicine* 44:477-83, May 1973.
620. SCHULTZ, Robert J., and FOX, James M. Gamekeeper's thumb. *New York State Journal of Medicine* 73:2329-31, Oct. 1, 1973.
621. SEAKINS, M., and others. Erythrocyte Hb-S concentration. An important factor in the low oxygen affinity of blood in sickle cell anemia. *Journal of Clinical Investigation* 52:423-32, Feb. 1973.

622. SEAMAN, R.G., and others. Venous reactivity during static exercise (handgrip) in man. *Journal of Applied Physiology* 35:858-60, Dec. 1973.
623. SECHER, Niels. Development of results in international rowing championships 1893-1971. *Medicine and Science in Sports* 5:195-99, Fall 1973.
624. SIEGEL, N., and others. Effect of tilting on pulmonary capillary blood flow in normal man. *Journal of Applied Physiology* 35:244-49, Aug. 1973.
625. SEIGER, V., and others. Energy metabolism in tennis. *Internationale Zeitschrift für Angewandte Physiologie* 31:333-40, 1973.
626. SERRA-TINIDES, F.A., and others. Sensory versus perceptual isolation: A comparison of their electrophysiological effects. *Aerospace Medicine* 44:539-41, May 1973.
627. SEVIER, Vernon A. A comparative study of aggression and related personality characteristics. *Journal of Physical Education* 71:38-41, 54-57, Nov.-Dec. 1973.
628. SEYMOUR, George F., GUNDERSON, Eric, and VALLACHER, Robin R. Clustering 34 occupational groups by personality dimensions. *Educational and Psychological Measurements* 33:267-84, Summer 1973.
629. SHAMBES, Georgia M., and WATERLAND, Joan C. Control of motor units in skill and postural muscles in normal man. An electromyographic study. *American Journal of Physical Medicine* 53:114-23, June 1973.
630. SHAPIRO, Yair, ROSENTHAL, Talma, and SOHAR, Ezra. Experimental brain stroke. *Archives of Internal Medicine* 131:688-92, May 1973.
631. SHAVER, Larry G. Cross transfer effects of training and detraining on relative muscular endurance. *American Corrective Therapy Journal* 27(2):49-56, March-April 1973.
632. SHAVER, Larry G. Muscular endurance in ipsilateral and contralateral arms. Influence of training and inactivity. *Archives of Physical Medicine and Rehabilitation* 54:505-10, Oct. 1973.
633. SHAW, David J., and others. The effects of age and blood pressure upon the systolic time intervals in males aged 20-89. *Journal of Gerontology* 28:133-39, April 1973.
634. SHELDON, P., and BEER, P.C. Synovitis of the knee treated by intra-articular hydrocortisone acetate, hydrocortisone acetate plus saline, or saline alone. *Rheumatology and Rehabilitation* XII:37-49, Feb. 1973.
635. SHILLING, Charles L., and BURY, Richard L. Attitudes toward recreational development potentials of non-corporate landowners. *Journal of Leisure Research* 5:74-82, Spring 1973.
636. SHRAIDER, Ruth E., and ZEMAN, Frances J. In vitro synthesis of anterior pituitary growth hormone as affected by maternal protein deprivation and postnatal food supply. *Journal of Nutrition* 103:1012-17, July 1973.
637. SHUELL, T.J., and GIGLIO, J. Learning ability and short-term memory. *Journal of Educational Psychology* 64:261-66, June 1973.
638. SHUKLA, K.K., and others. Physiological variation in the total-body potassium in man. *American Journal of Physiology* 224:271-74, Feb. 1973.
639. SHVARTZ, E., and others. Heat acclimatization while wearing vapor barrier clothing. *Aerospace Medicine* 44:609-12, June 1973.
640. SHVARTZ, E., and others. Physique and heat tolerance in hot-dry and hot-humid environments. *Journal of Applied Physiology* 34:799-803, June 1973.
641. SHVARTZ, E., and others. Relationship of the kilometer run to aerobic capacity. *Journal of Sports Medicine and Physical Fitness* 13:180-82, Sept. 1973.
642. SHVARTZ, Esar, and MAGAZANIK, Abraham. Tolerance to heat following cold stress. *Aerospace Medicine* 44:725-29, July 1973.
643. SIDOWSKI, Joseph B., CARTER, Kenneth, and O'BRIEN, Timothy. Variables influencing "lining up the shot" in golf putting. *Perceptual and Motor Skills* 37:39-44, Aug. 1973.
644. SIEKA, Frank L. Attitudinal factor patterns across three cultures. Denmark, Greece and the United States. *International Journal of Social Psychiatry* 19:10-18, Spring/Summer 1973.
645. SILVERSTEIN, A.B. Reliability and abnormality of difference between DTVP subtest scores. *Psychology in the Schools* 10:204-06, April 1973.
646. SIMONSEN, Richard J. Acquisition and retention of a motor skill by normal and retarded students. *Perceptual and Motor Skills* 36:791-99, June 1973.
647. SIMMONS, R.W.F., and HARDT, A.B. The effect of alkali ingestion on the performance of trained swimmers. *Journal of Sports Medicine and Physical Fitness* 13:159-63, Sept. 1973.
648. SIMON, Arthur B., and ALONZO, Angelo A. Sudden death in nonhospitalized cardiac patients. *Archives of Internal Medicine* 132:163-70, Aug. 1973.
649. SIMONS, D.G., and SWEETSER, T.H. Effects of hemiparesis and handgrip on the mean response and variability of the knee jerk. *American Journal of Physical Medicine* 52:221-42, Oct. 1973.

32 COMPLETED RESEARCH FOR 1974

650. SINGER, Robert N., and LLEWELLYN, Jack H. Effects of experimenter's gender on subject's performance. *Research Quarterly* 44:185-91, May 1973.
651. SINGER, Robert; LLEWELLYN, Jack; and DARDEN, Ellington. Placebo and competitive placebo effects on motor skill. *Research Quarterly* 44:51-58, March 1973.
652. SINNING, Wayne F. Body composition, cardiorespiratory functions, and rule changes in women's basketball. *Research Quarterly* 44:313-21, Oct. 1973.
653. SKINHOJ, F., and others. Influence of smoking and of nicotine on cerebral blood flow and metabolic rate of oxygen in man. *Journal of Applied Physiology* 35:820-22, Dec. 1973.
654. SKINNER, J.S., and others. Perception of effort during different types of exercise and under different environmental conditions. *Medicine and Science in Sports* 5(2):110-15, Summer 1973.
655. SKINNER, J.S., and others. The validity and reliability of a rating scale of perceived exertion. *Medicine and Science in Sports* 5(2):94-96, Summer 1973.
656. SLATER, Barbara R. Achievement in grade 3 by children who participated in perceptual training during kindergarten. *Perceptual and Motor Skills* 36:763-66, June 1973.
657. SLOAN, R.E.G., and KEATINGE, W.R. Cooling rates of young people swimming in cold water. *Journal of Applied Physiology* 35:371-75, Sept. 1973.
658. SMIDT, Gary L. Biomechanical analysis of knee flexion and extension. *Journal of Biomechanics* 6:79-92, Jan. 1973.
659. SMITH, Douglas P., and STRANSKY, Fred W. Physiological alterations from a ten-week jogging program. *Journal of Physical Education* 70:143-45, July-Aug. 1973.
660. SMITH, Roger C., and HUTTO, Gary L. Sonic booms and sleep: Affect change as a function of age. *Aerospace Medicine* 44:703-07, July 1973.
661. SMODLAKA, Vojin N. Interval training in rehabilitation medicine. *Archives of Physical Medicine and Rehabilitation* 54:428-31, Sept. 1973.
662. SMOKLER, Paul E., and others. Reproducibility of a multi-stage near maximal treadmill test for exercise tolerance in angina pectoris. *Circulation* 48:346-51, Aug. 1973.
663. SMOLL, Frank L. Effects of delay of information feedback upon acquisition of a motor skill. *American Corrective Therapy Journal* 27(3):70-72, May-June 1973.
664. SMOLL, Frank L. A rhythmic ability analysis system. *Research Quarterly* 44:232-36, May 1973.
665. SNYDER, Eldon E. Athletic dressing room slogans as folklore: A means of socialization. *International Review of Sport Sociology* 7:89-102, 1972.
666. SNYDER, Eldon E., and SPREITZER, Elmer A. Family influence and involvement in sports. *Research Quarterly* 44:249-55, Oct. 1973.
667. SOMMER, Henry C., and HARRIS, Stanley C. Combined effects of noise and vibration on human tracking performance and response time. *Aerospace Medicine* 44:276-80, March 1973.
668. SONSTROEM, Robert J., and WALKER, Maxwell I. Relationship of attitudes and locus of control to exercise and physical fitness. *Perceptual and Motor Skills* 36:1031-34, June 1973.
669. SORENSEN, Kjeld. Rheumatoid arthritis in Denmark. *Danish Medical Bulletin* 20:86-93, June 1973.
670. SOULE, R.G., and GOLDMAN, R.F. Pacing of intermittent work during 31 hours. *Medicine and Science in Sports* 5(2):128-31, Summer 1973.
671. SPEISS, J.M. Effects of preknowledge and stimulus intensity upon simple reaction time. *Journal of Experimental Psychology* 101:109-15, Nov. 1973.
672. SPRAGENS, Jane E. Physical education for the handicapped — A case study approach. *American Corrective Therapy Journal* 27(2):41-45, March-April 1973.
673. SRIVASTAVA, K.K., and others. Serum creatine phosphokinase activity and urinary excretion of creatine and creatinine in man during acclimatization to high altitudes and in high altitude natives. *Aerospace Medicine* 44:272-75, March 1973.
674. STALLWORTHY, Sir John. Sexual responsibility and the young. *Royal Society of Health Journal* 92:187-90, Aug. 1972.
675. STAMFORD, Bryant A. Effects of chronic institutionalization on the physical working capacity and trainability of geriatric men. *Journal of Gerontology* 28:441-46, Oct. 1973.
676. STEBBINGS, James H., Jr., and others. Two observed associations between respiratory allergies and hypertension in non-smokers. *American Journal of Epidemiology* 97:4-15, Jan. 1973.
677. STELMACH, George E., and KELSO, J.A. Scott. Distance and location cues in short-term motor memory. *Perceptual and Motor Skills* 37:403-06, Oct. 1973.
678. STERN, Michael P. Adrenocortical steroid treatment of rheumatic diseases. *Archives of Internal Medicine* 132:97-101, July 1973.
679. STERN, Samuel E., and NOE, Francis P. Affiliation — Participation in voluntary associations: A factor in organized leisure activity. *Sociology and Social Research* 57:473-81, July 1973.

680. STEWART, Kerry; GUTIN, Bernard; and LEWIS, Steven. Prior exercise and circulorespiratory endurance. *Research Quarterly* 44:169-77, May 1973.
681. STEWART, Robert A.; TUTTON, S. Jane; and STEELE, Richard E. Stereotyping and personality: I. Sex differences in perception of female physiques. *Perceptual and Motor Skills* 36:811-14, June 1973.
682. STEWART, Thomas R. The linear model in attitude measurement. An example and some comments. *Educational and Psychological Measurement* 33:285-90, Summer 1973.
683. STILES, R. N. Reciprocal innervation. Phase analysis of demodulated EMG from antagonistic muscles. *Journal of Applied Physiology* 34:294-98, March 1973.
684. STIMMEL, Barry; DONOSO, Ephraim; and DACK, Simon. Comparison of infective endocarditis in drug addicts and nondrug users. *American Journal of Cardiology* 32:924-29, Dec. 1973.
685. STOKER, J. G., and others. A simple method for measurement of oxygen consumption. *Journal of Applied Physiology* 35:748-50, Nov. 1973.
686. STOLWIK, Jan A., and NADEL, Ethan R. Thermoregulation during positive and negative work exercise. *Federation Proceedings* 32:1607-13, May 1973.
687. STONE, Eric A. Adrenergic activity in rat hypothalamus following extreme muscular exertion. *American Journal of Physiology* 224:165-69, Jan. 1973.
688. STORSTEIN, I., and EIE, H. Latent coronary insufficiency in young athletes. *Acta Medica Scandinavica* 193:525-31, June 1973.
689. STOUT, Howard W. Arm lengths and arm reaches: Some interrelationships of structure and functional body dimensions. *American Journal of Physical Anthropology* 38:151-61, Jan. 1973.
690. STRAITS, Bruce C.; WUEBBEN, Paul L.; and MAJKA, Theophile. Influences on subjects' perceptions of experimental research situations. *Sociometry* 35:499-518, Dec. 1972.
691. STRASSER, H., and others. Physiological and operational state of a group of aeroplane pilots under conditions of stressing tracking tests. *Aerospace Medicine* 44:1040-47, Sept. 1973.
692. STRASSER, T. Community control of hypertension. International activities. *Health Services Report* 88:387-90, May 1973.
693. STRAUER, B. E. Force-velocity relations of isotonic relaxation in mammalian heart muscle. *American Journal of Physiology* 224:431-34, Feb. 1973.
694. STREIMER, Irving, and others. A study of forced-pace work characteristics at a 33-foot working depth. *Government Reports Announcements* (Abstract) AD 753 854 (Available only from NTIS) 73:47, Feb. 1973.
695. STREICH, Roger, and GERBER, Gary J. Drug-induced reinstatement of amphetamine self-administration behaviour in monkeys. *Canadian Journal of Psychology* 27:168-77, June 1973.
696. STREETER, F. A., and others. Synthesis by fast muscle of myosin light chain characteristics of slow muscle in response to long term stimulation. *Nature-New Biology* 241:17-19, Jan. 1973.
697. STROOBANDT, Roland; FAGARD, Robert; and AMERY, Antoon K. P. C. Are patients with essential hypertension and low renin protected against stroke and heart attack? *American Heart Journal* 86:781-87, Dec. 1973.
698. STURDEVANT, Richard A. L.; PEARCE, M. L.; and DAYTON, S. Increased prevalence of cholelithiasis in men ingesting a serum-cholesterol-lowering diet. *New England Journal of Medicine* 288:24-27, Jan. 4, 1973.
699. STURGIS, Samuel P., and MORTIMER, Rudolf G. Effects of practice and alcohol on selected skills. Implications for an automobile alcohol ignition interlock. *Perceptual and Motor Skills* 37:267-74, Aug. 1973.
700. STURROCK, R. D.; WOJCIULEWSKI, J. A.; and HART, F. Dudley. Spondylometry in a normal population and in ankylosing spondylitis. *Rheumatology and Rehabilitation* XI:135-42, Aug. 1973.
701. STUTZ, Frederick P. Intra-urban social visiting and leisure behavior. *Journal of Leisure Research* 5:6-15, Winter 1973.
702. SU, Judy Y., and FRIEDMAN, William F. Comparison of the responses of fetal and adult cardiac muscle to hypoxia. *American Journal of Physiology* 224:1249-53, June 1973.
703. SUGAWARA, A. Ray. The study of top sportsmen in Japan. *International Review of Sport Sociology* 7:45-68, 1973.
704. SULLINS, Walter. Reliability estimation for tests containing sequentially dependent items. *Educational and Psychological Measurement* 33:621-25, Autumn 1973.
705. SURWILLO, Walter W. Choice reaction time and speed of information processing in old age. *Perceptual and Motor Skills* 36:321-22, 36:321-22, Feb. 1973.
706. SUTTIF, Sandra J. Differential effects of viewing four patterns of figure movement on performance of a dynamic balance task. *Perceptual and Motor Skills* 37:279-82, Aug. 1973.
707. SVOBODA, Milan. Influence of dynamic muscular fatigue and recovery on static strength. *Research Quarterly* 44:389-96, Dec. 1973.

34 COMPLETED RESEARCH FOR 1974

708. TAGUCHI, Sadayoshi; RAVEN, Peter B.; and HORVATH, Steven M. Comparisons between bicycle ergometry and treadmill walking maximum capacity tests. *Japanese Journal of Physiology* 21:681-90, 1971.
709. TALAG, Trinidad. Residual muscular soreness as influenced by concentric, eccentric, and static contractions. *Research Quarterly* 44:458-69, Dec. 1973.
710. TAYLOR, Charles E., and KNUDSON, Douglas M. Area preferences of midwestern campers. *Journal of Leisure Research* 5:39-48, Spring 1973.
711. TAYLOR, H.L.; BUSKIRK, F.R.; and REMINGTON, R.D. Exercise in controlled trials of the prevention of coronary heart disease. *Federation Proceedings* 32:1623-27, May 1973.
712. TAYLOR, M.R.H. The ventilatory response to hypoxia during exercise in cyanotic congenital heart disease. *Clinical Science and Molecular Medicine* 45:99-105, July 1973.
713. TCHENG, Tse-Kia, and TIPTON, Charles M. Iowa wrestling study: Anthropometric measurements and the prediction at a minimal body weight for high school wrestlers. *Medicine and Science in Sports* 5(1):1-10, Spring 1973.
714. TERRY, Roger L.; CAREY, Norma L.; and HUTSON, Timothy D. A dependence interpretation of the effect of performance expectancies. *Journal of Social Psychology* 91:219-24, Oct. 1973.
715. THOMAS, J.R., and CHISSOM, B.S. Differentiation between high and low sociometric status for sixth grade boys using selected measures of motor skill. *Child Study Journal* 3:125-30, Fall 1973.
716. THOMAS, J.R., and CHISSOM, B.S. An investigation of the combination of a perceptual-motor test and a cognitive ability test for the purpose of classifying first-grade children into reading groups. *Psychology in the Schools* 10:185-89, April 1973.
717. THOMAS, Jerry R., and CHISSOM, Brad S. Comparison of group X trials analysis of variance and discriminant analysis for use in group profile evaluations. *Perceptual and Motor Skills* 37:671-75, Oct. 1973.
718. THOMAS, Jerry R., and CHISSOM, Brad S. Note on factor structure of the Frostig Developmental Test of visual perception. *Perceptual and Motor Skills* 36:510, April 1973.
719. THOMAS, Jerry R.; COTTON, Doyice J.; and BIASIOTTO, Judson. Physical fitness of low socioeconomic level white males. *American Corrective Therapy Journal* 27(2):46-48, March-April 1973.
720. THOMAS, John R. Nitrogen, helium and neon effects on diving behavior at increased pressures. *Aerospace Medicine* 44:45-48, Jan. 1973.
721. THOMSON, Maurice, and PAVIA, Demetri. Long-term tobacco smoking and mucociliary clearance. *Archives of Environmental Health* 26:86-89, Feb. 1973.
722. THORPE, William R. Some effects of caffeine and quinidine on sarcoplasmic reticulum of skeletal and cardiac muscle. *Canadian Journal of Physiology and Pharmacology* 51:499-503, July 1973.
723. THURBER, S., and others. The control orientation of black athletes in relation to unobtrusive tasks of skill. *Journal of Psychology* 85:43-44, Sept. 1973.
724. TOMBAUGH, Tom N. An evaluation of secondary reinforcement effects in a comparison of partial reinforcement and partial delay of reinforcement. *Canadian Journal of Psychology* 27:70-76, March 1973.
725. TONTISIRIN, K., and others. Plasma tryptophan response curve and tryptophan requirements of elderly people. *Journal of Nutrition* 130:1220-28, Aug. 1973.
726. TORNEY, D.J. The effect of intermittent punishment-partial reward training on resistance to continuous punishment. *Canadian Journal of Psychology* 27:1-6, March 1973.
727. TORRES, Jose; HUMPHREYS, Ensley; and BISNO, Alan L. Rocky Mountain spotted fever in the mid-South. *Archives of Internal Medicine* 132:340-47, Sept. 1973.
728. TOWNSEND, M.A. A relationship between muscle performance when producing and absorbing work. *Journal of Biomechanics* 6:261-65, May 1973.
729. TOYOSHIMA, Shintaro, and MIYASHITA, Mitsumasa. Force-velocity relation in throwing. *Research Quarterly* 44:86-95, March 1973.
730. TUCKER, Alan, and HORVATH, Steven M. Relationship between organ weight and blood flow in rats adapted to simulated high altitude. *Aerospace Medicine* 44:1036-39, Sept. 1973.
731. TURVEY, M.T. On peripheral and central processes in vision inferences from an information-processing analysis of masking with patterned stimuli. *Psychological Review* 80:1-52, Jan. 1973.
732. U'DRY, J.R., and BAUMAN, Karl E. Unwanted fertility and the use of contraception. *Health Services Reports* 88:730-32, Oct. 1973.
733. ULEHLA, Z. Joseph, and ADAMS, Darrell K. Detection theory and expectations for social reinforcers: An application to aggression. *Psychological Review* 80:439-45, Nov. 1973.
734. VACHON, Louis, and others. Single-dose effect of marihuana smoke. *New England Journal of Medicine* 288:985-89, May 10, 1973.

735. VALENTINOVA, N.G., and MYEDVYEDYEV, V.V. Selected problems of small groups in sports teams. *International Review of Sport Sociology* 8:69-77, 1973.
736. VANDER KALK, C.J. Comparison of two mental health counselor training programs. *Community Mental Health Journal* 9:260-69, Fall 1973.
737. VANDER WALT, W.H., and WYNDHAM, C.H. An equation for prediction of energy expenditure of walking and running. *Journal of Applied Physiology* 34:559-63, May 1973.
738. VAN GERVEN, Dennis P. Thickness and area measurements as parameters of skeletal involution of the humerus, femur, and tibia. *Journal of Gerontology* 28:40-45, Jan. 1973.
739. VAN HANDEL, P.; BLOSSER, T.; and BUTTS, N. A method of heat stress prevention for football players. *American Corrective Therapy Journal* 27:180-83, Nov.-Dec. 1973.
740. VARNE, P., and others. Energy balance during moderate exercise at altitude. *Journal of Applied Physiology* 34:633-38, May 1973.
741. VECCHIET, L., and others. On the muscular pain in stress trials. *Journal of Sports Medicine and Physical Fitness* 13:26-31, March 1973.
742. VEGHTE, James H. Human exposure to high radiant environments. *Aerospace Medicine* 44:1147-51, Oct. 1973.
743. VICTOR, J.B., and others. Objective behavior measures of first-and second-grade boys' free play and teachers' ratings on a behavior problem checklist. *Psychology in the Schools* 10:439-43, Oct. 1973.
744. VIVIAN, Talbot N.; GOLDSTEIN, Gerald; and SHELLY, Carolyn. Reaction time and motor speed in chronic alcoholics. *Perceptual and Motor Skills* 36:136-38, Feb. 1973.
745. VOGT, J.J., and others. Motor, thermal and sensory factors in heart rate variation: A methodology for indirect estimation of intermittent muscular work and environmental heat loads. *Ergonomics* 16:45-60, Jan. 1973.
746. VORRO, Joseph. Stroboscopic study of motion changes that accompany modifications and improvements in a throwing performance. *Research Quarterly* 44:216-26, May 1973.
747. WADHWA, P.S., and others. Metabolic consequences of feeding frequency in man. *American Journal of Clinical Nutrition* 26:823-30, Aug. 1973.
748. WAGNER, J.A., and others. Validation of open-circuit method for the determination of oxygen consumption. *Journal of Applied Physiology* 34:859-63, June 1973.
749. WAHREN, J., and others. Glucose and amino acid metabolism during recovery after exercise. *Journal of Applied Physiology* 34:838-45, June 1973.
750. WANG, Chao-Jen; WALKER, Peter S.; and WOLF, Barry. The effects of flexion and rotation on the length patterns of the ligaments of the knee. *Journal of Biomechanics* 6:587-96, Nov. 1973.
751. WASSERMAN, K., and others. Anaerobic threshold and respiratory gas exchange during exercise. *Journal of Applied Physiology* 35:236-43, Aug. 1973.
752. WATERS, Robert L.; MORRIS, James; and PERRY, Jacquelin. Translational motion of the head and trunk during normal walking. *Journal of Biomechanics* 6:167-72, March 1973.
753. WATT, Edward W.; BUSKIRK, E.R.; and PLOTNICKI, B.A. A comparison of single vs. multiple daily training regimens: Some physiological considerations. *Research Quarterly* 44:119-23, March 1973.
754. WEBB, Wise B., and AGNEW, Jr., H.W. Effects on performance of high and low energy expenditure during sleep deprivation. *Perceptual and Motor Skills* 37:511-14, Oct. 1973.
755. WEILL, Hans. Pulmonary function testing in industry. *Journal of Occupational Medicine* 15:673-99, Sept. 1973.
756. WEINER, Frederick F. Choice reaction time as a function of frequency differences. *Perceptual and Motor Skills* 36:307-10, Feb. 1973.
757. WEISER, Philip; KINSMAN, Robert A.; and STAMPER, David A. Task-specific, symptomatology changes resulting from prolonged submaxima bicycle riding. *Medicine and Science in Sports* 5(2):79-85, Summer 1973.
758. WEISNER, Robert R., and SHARKEY, Brian J. Some characteristics of wilderness backpackers. *Perceptual and Motor Skills* 36:876-78, June 1973.
759. WELLS, C.L., and HORVATH, S.M. Heat stress responses related to the menstrual cycle. *Journal of Applied Physiology* 35:1-5, July 1973.
760. WENNBERG, L.A., and others. Energy balance and change in body weight and body water in man during a 2-day cold exposure. *Journal of Applied Physiology* 35:477-79, Oct. 1973.
761. WHEELER, Erica F., and others. The effect of work level and dietary intake on water balance and the excretion of sodium, potassium and iron in a hot climate. *British Journal of Nutrition* 30:127-37, July 1973.
762. WHIPP, Brian, and WASSERMAN, Karlman. The effect of work intensity on the transient respiratory responses immediately following exercise. *Medicine and Science in Sports* 5(1):14-17, Spring 1973.

36 COMPLETED RESEARCH FOR 1974

763. WHITENER, S.F., and JAMES, K.W. The relationship among motor tasks for preschool children. *Journal of Motor Behavior* 5:231-40, Dec. 1973.
764. WHITFIELD, Audrey P. Cervical cancer screening programmes and voluntary support. *Royal Society of Health Journal* 92:282-86, Dec. 1972.
765. WHITLEY, Jim. Effects of increasing inertial resistance on performance and learning of a training task. *Research Quarterly* 44:1-11, March 1973.
766. WHYTE, H.M.; NESTEL, P.J.; PRYKE, E.S. Bile acid and cholesterol excretion with carbohydrate-rich diets. *Journal of Laboratory and Clinical Medicine* 81:818-28, June 1973.
767. WILBERG, Robert B., and SALMELA, John H. Information load and response consistency in sequential short-term motor memory. *Perceptual and Motor Skills* 37:23-29, Aug. 1973.
768. WILHELMSEN, Lars; WEDEL, Hans; and TIBBLIN, Gosta. Multivariate analysis of risk factors for coronary heart disease. *Circulation* 48:950-58, Nov. 1973.
769. WILKINSON, Paul F. The use of models in predicting the consumption of outdoor recreation. *Journal of Leisure Research* 5:34-48, Summer 1973.
770. WILLGOOSE, Carl E. Saving the curriculum in health education. *Journal of School Health* XLIII:189-91, March 1973.
771. WILLIAMS, Allan F. Personality and other characteristics associated with cigarette smoking among young teenagers. *Journal of Health and Social Behavior* 14:374-80, Dec. 1973.
772. WILLIAMS, L. R. T. Perceptual delay of the second of two adjacent stimuli in a large body movement. *Journal of Motor Behavior* 5:225-30, Dec. 1973.
773. WILLIAMS, L. R. T. Psychological refractoriness of two serial motor responses. *Research Quarterly* 44:24-33, March 1973.
774. WILLIAMS, L. R. T., and HEARFIELD, V. Heritability of a gross motor balance task. *Research Quarterly* 44:109-112, March 1973.
775. WILLIAMS, M.H., and others. Effect of a blood reinjection upon endurance capacity and heart rate. *Medicine and Science in Sports* 5:181-84, Fall 1973.
776. WILLIAMS, Melvin H., and THOMPSON, John. Effect of variant dosages of amphetamine upon endurance. *Research Quarterly* 44:417-22, Dec. 1973.
777. WILLIAMSON, Josephine. The problem of abortion. *Royal Society of Health Journal* 92:85-87, April 1972.
778. WILMORE, J.H., and COSTILL, D.L. Adequacy of the Haldane transformation in the computation of exercise VO_2 in man. *Journal of Applied Physiology* 35:85-89, July 1973.
779. WILSON, P.K. Etiologic and initial cardiovascular characteristics of participants in a cardiac rehabilitation program. *American Corrective Therapy Journal* 27:122-26, July-Aug. 1973.
780. WISE, Robert M., and others. Effect of pCa on series-elastic component of glycerinated skeletal muscle. *American Journal of Physiology* 224:576-79, March 1973.
781. WISNELL, Robert A., and O'CONNELL, Eugene R. Measurement of trunk lateral flexion: A clinical note. *American Corrective Therapy Journal* 27(1):5-8, Jan.-Feb. 1973.
782. WITTEN, C.Y., and WITTEN, W.A. The effects of frequency interval training upon cardiovascular fitness among college females. *Journal of Sports Medicine and Physical Fitness* 13:183-86, Sept. 1973.
783. WOLANSKI, Napoleon, and PYZUK, Mira. Morpho-physiological characters and physical work capacity in 15-72 years old inhabitants of low mountains, Pieniny Range, Poland. *Human Biology* 44:595-611, Dec. 1972.
784. WOODSON, Robert D.; WRANNE, Bengt; and DETTER, James C. Effect of increased blood oxygen affinity on work performance of rats. *Journal of Clinical Investigation* 52:2727-24, Nov. 1973.
785. WRIGHT, M.D. Maximum motor nerve conduction velocity in XYZ males. *Clinical Science and Molecular Medicine* 45:337-45, Sept. 1973.
786. WYSOCKI, Boleslaw A., and WYSOCKI, Aydin C. The body-image of normal and retarded children. *Journal of Clinical Psychology* 29:7-10, Jan. 1973.
787. YAMASHIRO, S.M., and GRODINS, F.S. Respiratory cycle optimization in exercise. *Journal of Applied Physiology* 35:522-25, Oct. 1973.
788. YASUDA, Norikazu, and KIMURA, Motoo. A study of human migration in the Mishima district. *Annals of Human Genetics* 36:313, Jan. 1973.
789. YERUSHALMY, J. Congenital heart disease and maternal smoking habits. *Nature* 242:262, March 23, 1973.
790. YOFSTING, Dean R., and BURKHEAD, Don L. Significance of childhood recreation experience on adult leisure behavior: An exploratory analysis. *Journal of Leisure Research* 5:25-36, Winter 1973.

- 791. YORK, George K., and others. Pulmonary macrophage respiration as affected by cigarette smoke and tobacco extract. *Archives of Environmental Health* 27:96-98, Aug. 1973.
- 792. YOUNG, Vernon R., and others. Protein requirements of man. Efficiency of eye protein utilization at maintenance and submaintenance levels in young men. *Journal of Nutrition* 130:1164-74, Aug. 1973.
- 793. ZACKS, R.M. The mechanical efficiencies of running and bicycling against a horizontal impeding force. *Internationale Zeitschrift für Angewandte Physiologie* 31:249-58, 1973.
- 794. ZALEMAN, Steven, and others. Marijuana and amphetamines: The question of interaction. *American Journal of Psychiatry* 130:707-08, June 1973.
- 795. ZIMMERMAN, A.W., and others. Treatment of seizures during menstruation. *Journal of Pediatrics* 83:959-63, Dec. 1973.
- 796. ZION, M.M., MARCHAND, P.E., and OBEL, L.W.P. Long-term prognosis after cardiac pacing in atrioventricular block. *British Heart Journal* 35:359-64, April 1973.
- 797. ZOLLINGER, Randa. Mechanical analysis of windmill fast pitch in women's softball. *Research Quarterly* 44:290-300, Oct. 1973.
- 798. ZUCKER, Arnold H., and WAKEMAN, Samuel. Results of group therapy with young drug addicts. *International Journal of Social Psychiatry* 18:267-79, Winter 1972/73.
- 799. ZURN, Marek. Tourism and motor activity of Cracow inhabitants. *International Review of Sport Sociology* 8:79-94, 1973.
- 800. ZUTSKI, D.W., and others. Double-blind cross-over study of orudis and placebo in fifty patients with rheumatoid arthritis. *Rheumatology and Rehabilitation* XII:62-67, May 1973.

PART III—THESES ABSTRACTS

Abbreviations appearing in this publication:

- AAHPER = American Alliance for Health, Physical Education, and Recreation
(abbreviate all familiar organizations, e.g., AAU, NCAA, etc.)
- ACL = Gough's Adjective Check List
- ACT = American College Test
- ANCOVA = analysis of covariance
- ANOVA = analysis of variance
- bpm = beats per minute
- BTPS = body temp. pressure saturated
- C = Centigrade
- CA = chronological age
- Cattell 16 PF = Cattell 16 Personality Factor Inventory
- CO₂ = carbon dioxide
- CPI = California Psychological Inventory
- χ^2 = chi square
- E = experimenter
- ELE = elementary
- EKG = electrocardiogram
- EMG = electromyogram
- EMR = educable mentally retarded
- exp. = experiment and experimental
- F = Fahrenheit
- F = F ratio
- FEV 1.0 or 2.0 = forced expiratory volume
- FPS = frames per second
- fresh. = freshman
- gm. = gram
- GPA = grade point average
- HE = health education
- ht. = height
- HR = heart rate
- IQ = intelligence quotient
- jr. = junior
- JHS(s) = junior high school(s)
- kg. = kilogram
- kg/m = kilogram per meter
- kpm/min = kilopondmeter per minute
- KR = knowledge of results
- l/min = liters per minute
- M = mean
- measurement, units of*
- max. = maximum or maximal
- mm. = millimeter
- MMPI = Minnesota Multiphasic Personality Inventory
- mph = miles per hour
- msec. = millisecond(s)
- MT = movement time
- N = number (e.g., of subjects) all numbers in arabic form, e.g., 1, 2, 3; 1st, 2nd, 3rd
- N₂ = nitrogen
- O₂ = oxygen
- p = probability ($p < .05$ = significance greater than .05 level, $p > .01$ = nonsignificant at .01 level)
- PE = physical education
- PR = pulse rate
- % = percent
- psi = pounds per square inch
- r = correlation
- REC = recreation

40 COMPLETED RESEARCH FOR 1974

rpm = revolutions per minute

RT = recreation time

S(s) = subject(s); S's = subject's (possessive)

SAT = Scholastic Aptitude Test

SD = standard deviation

SE = sex education

sr. = senior

SHS(s) = senior high school(s)

STPD = standard temp. pressure dry

SV = stroke volume

$t = t$ ratio

temp. = temperature

U.S. = United States

USSR = Union of Soviet Socialist Republics

wt. = weight

VC = vital capacity

$\dot{V}O_2$ = oxygen uptake

\dot{V}_E = ventilation equivalent

YMCA = Young Men's Christian Association

V_T = tidal volume

YWCA = Young Women's Christian Association

*in. = inch, sec. = second, wk. = week, hr. = hour, etc.

40

ABSTRACTS

University of Arkansas, Fayetteville, Arkansas

(G. C. Moore)

1. DENKER, Roger W. *The effect of two different periods of weight reduction upon the physical fitness of college wrestlers*. Ed.D. in Physical Education, 1973. 104 p. (G. C. Moore)
The effect of a 3-day wt. reduction period and a 9-day period on cardiorespiratory fitness, muscular strength, muscular endurance, muscular power, balance, agility, and whole body MT was investigated for college wrestlers ($N=20$). Two reduction periods of 3 days duration and 2 periods of 9 days duration were used. Wt. loss ranged from 5.5 to 13 lb. with an average of 9.1 lb., which was approximately 6% of the S's conditioned body wt. Statistical procedures included multiple regression, ANOVA, and ANCOVA. Conclusions: (1) wt. reduction affects several components of physical fitness. These affects are due to the length of the wt. reduction period and not to the amount of wt. loss, (2) a rapid 3-day wt. reduction period results in improved performance in muscular power, balance, and agility, (3) a 9-day period results in improved performances in muscular endurance, muscular power, balance, agility, and whole body MT, and (4) a rapid 3-day reduction period significantly affects cardiorespiratory fitness and muscular strength when compared with the more gradual 9-day wt. reduction period.
2. KIM, Chang K. *Energy expenditure during tae kwon do free sparring*. M.Ed. in Physical Education, 1973. 40 p. (G. C. Moore)
The study was to determine and analyze energy cost and HR during 3-min. free sparring in tae kwon do and to investigate relationships between these measures and energy cost and HR during the Astrand Ryhming Bicycle Test. Ss ($N=5$) were members of the tae kwon do club at the University of Arkansas (age 19-29) with from 8-mo. to 2-yr. experience. Each S was tested during 3 min. of free sparring on 5 different occasions over a 5- or 6-wk. period. HR was monitored by telemetry and expired air was collected for 30 sec. during the last minute of the sparring. VO_2 was determined and converted to calories per liter of body wt. Similar values were obtained during the Astrand Ryhming Bicycle Test. Conclusions: The energy cost of tae kwon do was 16.2 kcal/min. with a HR average of 176.5. The Astrand Ryhming Test yielded an energy cost of 13.4 kcal/min. and an average HR of 156.6. The r between energy cost of tae kwon do and bicycle test was .903, with HR correlating .842.
3. MOTLEY, Paul C. *Personality and attitude changes of college freshmen due to participation in a required adapted physical education program*. Ed.D. in Physical Education, 1973. 140 p. (G. C. Moore)
Two groups (adapted and adapted control) were administered the Wear Physical Education Attitude Inventory and the Heston Personal Adjustment Inventory at the beginning and end of a 15-wk. period. A control group was administered these tests at the beginning of the program. The adapted group participated in one of 3 adapted programs (strenuous, $N=8$; moderate, $N=14$; and light, $N=9$). The adapted control ($N=17$) had no scheduled exercise periods but qualified for the adapted program. The normal control ($N=71$) was randomly chosen from freshmen enrolled in the regular basic service classes in PE for the 15-wk. period. ANOVA was computed on pre and post measures. Results indicated no significant differences initially between adapted and adapted control but both had significantly lower scores on attitude toward PE than the normal control group. Except for the personal adjustment variable of "confidence" (where the adapted made significant improvement) neither adapted nor adapted control changed significantly on the criterion measures. Also there were no significant differences between the adapted subgroups (strenuous, moderate, light) on any of the criterion measures.
4. NUTTER, Bill L. *A comparison of the modified standing start and the traditional crouch starts for running speed*. Ed.D. in Physical Education, 1973. 92 p. (G. C. Moore)
Sprint speed times for 20 yd. and 60 yd. were compared using 4 different starting positions: Modified standing position and bunch, medium, and elongated crouch positions. Ss were 14 members of the University of Arkansas track team during the 1972 track season. Timing of the test runs was performed through the use of cinematography. The ground surface was AstroTurf. There were 3 testing sessions and each S ran each experimental start position twice in each session for a total of 6 runs at each start position. ANOVA was the statistical method used. Conclusions: sprint run times at 20 yd. and 60 yd. were better from the modified standing position than from the elongated crouch but not significantly better than starting from the bunch crouch or medium crouch positions. Leg length was found not to be an interacting factor on sprint times with the various start positions.

42 UNIVERSITY OF ARKANSAS, UNIVERSITY OF CALIFORNIA, BERKELEY, and
UNIVERSITY OF CALIFORNIA, LOS ANGELES

5. YARBROUGH, Edna I. *The effect of breakfast on the motor performance and blood glucose levels of university women*. Ed.D. in Physical Education, 1973, 88 p. (G. C. Moore)
Women students (N=20) Louisiana Tech, 18 to 28 yr. of age, were divided into 2 groups. Each group (N=10) was then subdivided into those who habitually ate breakfast (N=5) and those who habitually omitted breakfast (N=5). One group was given a standard breakfast for 2 wk. while the other group omitted breakfast. The groups were rotated for the second 2-wk. period. During the 4-wk. exp. period, tests were administered 2 days each wk. and included response time, MT, grip strength, cardiovascular endurance, and blood glucose level. A food intake record was kept individually for 3 days each wk. during the study. ANOVA was the statistical procedure used. Conclusions: (1) group mean blood glucose level was significantly higher when breakfast was consumed, (2) No statistical differences were found for any of the variables with and without breakfast or between habitual or nonhabitual consumers of breakfast.

University of California, Berkeley, California

(D. B. Van Dalen)

6. BONNER, Hugh Warren. *Two-factor theory of warm-up exercise in heavy physical work*. Ph.D. in Education, 1972, 61 p. (F. M. Henry)
7. COON, Terrill Underwood. *Effect of practice and knowledge of results on intravariance for kinesthetically monitored force and distance reproduction tasks*. M.A. in Physical Education, 1972, 66 p. (M. L. Norrie)
8. EDWARDS, Sally. *Effect of fatiguing exercise on the response of the direct motor response, the H reflex, the Achilles tendon reflex and simple reaction time*. M.A. in Physical Education, 140 p. (G. L. Rarick) 1971.
9. FAHEY, Thomas Davin. *The effects of an anabolic steroid on the strength, body composition, and endurance of college males when accompanied by a weight training program*. Ed.D. in Educational Curriculum — Physical Education, 1972, 87 p. (L. F. Scott)
10. HART, Dale Paul. *Jogging as a form of collective behavior*. Ed.D. in Social Foundations — Physical Education, 1972, 196 p. (D. B. Van Dalen)
11. KIEFER, Gayle Lynn. *The effect of an audience on motor performance of high and low anxiety subjects*. M.A. in Physical Education, 1972, 62 p. (M. L. Norrie)
12. NEINER, Randi Alane. *Visual perceptual development and performance on eye-hand coordination tasks in first and third-grade children*. M.A. in Physical Education, 1972, 88 p. (H. M. Eckert)
13. NURMBERG, Reet Ann. *Sport and physical education in Estonia*. Ed.D. in Social Foundations — Physical Education, 1972, 513 p. (D. B. Van Dalen)
14. OSTROW, Andrew Craig. *Goal-setting behavior and need achievement in relation to a competitive motor activity*. Ph.D. in Education, 1972, 146 p. (D. Tillery)
15. TODOR, John Ivan. *Age difference in the generality and specificity of motor learning and performance*. Ph.D. in Education, 1972, 88 p. (A. R. Jensen)

University of California, Los Angeles, California

(G. Egstrom)

16. ANDREWS, Ildiko. *Determination of the importance of hemoglobin and myoglobin of normal and anemic rats in acute exercise*. M.S. in Kinesiology, 1973, (V. R. Edgerton)
17. BERGEL, Reinhard. *A comparative study of selected perceptual and perceptual-motor abilities in five year old boys*. M.S. in Kinesiology, 1973, (B. J. Cratty)
18. BILLES, Laurie Kate. *Immobilization of guinea pig skeletal muscle*. M.S. in Kinesiology, 1973, (V. R. Edgerton)

19. BOWERS, Cathy. *Social stratification of women golfers*. M.S. in Kinesiology, 1973. (S. Arnold)
20. DOREMUS, Linda Perez. *Structural and neuromuscular mechanisms of flexibility*. M.S. in Kinesiology, 1973. (J. L. Smith)
21. FISTER, Lani Wood. *Comparative study of methods in teaching beginning swimming*. M.S. in Kinesiology, 1973. (R. A. Snyder)
22. GIBBS, Elmor Thal. *Movement and behavioral correlates related to altered sensitivity through structural change in the stretch-tension neuromuscular system*. M.S. in Kinesiology, 1973. (J. L. Smith)
23. GREENFIELD, Christopher. *Physical education in Mexico 1867-1972*. M.S. in Kinesiology, 1973. (B. W. Miller)
24. LEE, Jenniter Lynn Crockett. *Effects of tissue extracts on mouse skeletal muscle*. M.S. in Physical Education, 1972. (V. R. Edgerton)
25. McCracken, Hugh Dobbie. *Continuity and discontinuity of movement strategies in children*. M.S. in Kinesiology, 1973. (J. F. Keogh)
26. MOHR, Katharine. *Selected components of anxiety in relation to changes in physiological performance*. M.S. in Physical Education, 1972. (S. Arnold)
27. SVENDSEN, Janet. *Shotput form related to putting distance: A cinematography study*. M.S. in Physical Education, 1973. (J. L. Smith)

California State University, Chico, California

(W. R. Marshall)

28. CROW, John Fletcher II. *A history of the development of baseball equipment in America since 1820*. M.A. in Physical Education, 1973. 87 p. (F. R. Reith)
This study presents in logical order the development of baseball playing equipment from 1820 to 1973. The literature surveyed indicated that there were no published materials that related specifically to the development of baseball playing equipment. The research design was divided into the periods: 1820 to 1860, 1860 to 1880, 1880 to 1900, 1900 to 1930, and 1930 to 1973.
29. GASPAR, Lloyd E. *The effects of artificial turf on national league baseball teams*. M.A. in Physical Education, 1973. 77 p. (R. K. Cutler)
This study evaluated the effects of artificial turf on National League baseball teams during the 1972 season comparing selected averages attained on artificial turf with corresponding averages on natural turf. Conclusions: (1) there was no significant difference between batting averages on artificial turf and on natural turf; (2) double averages on artificial turf were significantly greater than those on natural turf; (3) triple averages on artificial turf were significantly greater than those on natural turf; (4) there was no significant difference between runs scored per game on artificial turf and on natural turf; (5) there was no significant difference between errors committed per game on artificial turf and on natural turf.
30. GORDON, Allan E. *Attitudes of selected administrators toward secondary school physical education*. M.A. in Physical Education, 1973. 129 p. (R. K. Cutler)
The attitudes of administrators of selected SHS of northern California toward PE were determined to identify those factors inherent in the positive and negative attitudes expressed by the respondents. Conclusions: (1) selected SHS administrators expressed significantly favorable attitudes toward PE in SHS, (2) unanimous agreement was strong with the general, emotional, social, and physical outcomes of PE in SHS, (3) physical activity was considered very important in everyday life, (4) credit should be given in PE in SHS, (5) PE should be required in SHS, (6) grades should be assigned to students in PE classes at the SHS level.

**44 CALIFORNIA STATE UNIVERSITY, NORTHRIDGE and
CALIFORNIA STATE UNIVERSITY, SACRAMENTO**

California State University, Northridge, California

(W. C. Sutton)

31. BERGMAN, Dennis J. *Computer guidelines for the health science researcher*. M.S. in Health Statistics, 1973. 50 p. (B. Hanes)
32. DWORSKY, Ruth. *Health observations: Greece, Israel, and Yugoslavia*. M.P.H. in Community Health Education, 1973. 73 p. (L. H. Glass)
33. ESPOSITO, Daniel R. *The need for a uniform method of investigation of domestic carbon monoxide incidents*. M.S. in Environmental Health, 1973. 68 p. (L. H. Glass)
34. FUSCHETTI, Fair Ochs. *Moving and lifting safely: A programmed instruction booklet*. M.S. in Environmental Health, 1973. 90 p. (G. B. Krishnamurty)
35. FRILLES, Milagros S. *Attitudes of Philippine public school educators toward family life/sex education*. M.S. in School Health Education, 1973. 137 p. (J. T. Fodor)
36. FRANKLIN, Stephen L. *Laminaria reduces time of saline amniocentesis abortion*. M.S. in Health Services Administration, 1973. 45 p. (D. M. Hufnines)
37. GYIMESI, Ferenc C. *The self-concept of heroin addicts: Measurement of the effect of short-term detoxification*. M.P.H. in Community Health Education, 1973. 71 p. (A. Steckler)
38. KRISHNAMURTY, Mary Egenhoff. *The development of an instrument for assessing Dukun kit utilization*. M.P.H. in Community Health Education, 1973. 43 p. (L. H. Glass)
39. MERRYMAN, Robert E. *A comparison of two restaurant evaluation forms*. M.S. in Environmental Health, 1973. 42 p. (L. H. Glass)
40. NELSON, Barry Vernon. *Estimating bed requirements for nursing facilities: A revised method*. M.S. in Health Services Administration, 1973. 18 p. (D. M. Hufnines)
41. NOVAK, Deena Gay. *The organization and development of a youth health rights council*. M.P.H. in Community Health Education, 1973. 38 p. (A. Steckler)
42. PROCHASKA, Robert Gary. *Pesticide safety practices by a selected group of poultrymen in San Bernardino County*. M.S. in Environmental Health, 1973. 55 p. (L. H. Glass and G. B. Krishnamurty)
43. SANJENKO, Grace Loretta. *Physicians' attitudes toward abortion patient care*. M.S. in Community Health Education, 1973. 79 p. (L. H. Glass)
44. SCHNEIDER, Meier. *An environmental study of mercury contamination in dental offices*. M.S. in Environmental Health, 1973. 57 p. (D. E. Kelly)
45. SMITH, Marjorie Mae. *A profile of selected pregnant adolescent girls*. M.S. in Community Health Education, 1973. 122 p. (A. B. Steckler and G. B. Krishnamurty)

California State University, Sacramento, California

(D. R. Mohr)

46. ALVORD, Robert G. *A survey of automotive consumer items taught in the classroom phase of driver education in selected California secondary schools*. M.A. in Health and Safety Studies, 1973. 71 p. (R. Meister)

A list of consumer items pertaining to the safety, maintenance, and operation of the automobile was developed to serve as an instructional guide for California secondary instructors of the classroom phase of driver education. A set of questionnaires was sent to California secondary driver education and auto shop instructors and another to a jury of experts in the fields of driver education and auto shop and vocational education. Conclusions: (1) automotive consumer items should be taught in the classroom phase; (2) more time than the California state minimum 30 clock-hour requirement should be devoted

to the classroom phase; (3) California secondary driver education instructors and members of the driver education jury of experts did not possess a consistent degree of knowledge of automotive consumer items.

47. BERTOLUCCI, Lawrence E. *Forces affecting knee stability in hemiplegics with a short leg brace*. M.A. in Physical Education, 1973. 101 p. (W. A. Bynum, Jr.)

This study measured and compared the forces produced at the calf band while wearing conventional and exp. short leg braces. The exp. brace was designed to control the inability to maintain knee extension, and knee recurvatum during the stance phase of gait, with a locked ankle joint set in specific degrees of either dorsiflexion or plantarflexion. Four Ss were tested using dynamometric and electrogoniometric procedures, and a partial rotational test design was employed. The results indicated that there were significant changes present producing an increase in force and changes in knee motion with both settings (dorsiflexion and plantarflexion) with the exp. brace in comparison to the convention style brace.

48. CLAY, James E. *A comparison of the effects of progressive resistance exercise using weights and the Exer-Genie on elbow flexor strength of tenth grade boys*. M.A. in Physical Education, 1973. 49 p. (D. R. Mohr)

Ss ($N=45$) were 10th grade boys at San Juan HS in Sacramento, California. They were divided at random into 3 groups. In addition to regular PE, 1 exp. group lifted weights 3 days/wk. for 10 wk.; the other exp. group exercised with the Exer-Genie, same days and weeks. The control group received no strenuous resistive activity while participating in the regular PE program. The 2 exp. groups showed greater gains in elbow flexor strength, at 3 angles, than the control group ($p < .05$). Gains in strength for the 2 exp. groups were not significant.

49. DE SANTIS, Manlio A. *A brief history of the interscholastic football program at the Hiram Johnson High School from 1958 through 1967*. M.A. in Physical Education, 1973. 244 p. (H. H. Wolf)

The sources of data included newspapers, yearbooks, and interviews. It was learned that the program has provided the opportunity for all Hiram Johnson (Sacramento, California) students to acquire the knowledge and understanding necessary to appreciate and enjoy the sport of football. The program has always placed the welfare of the participant above any other consideration and has provided the finest possible instruction in all phases of the game of football. The program has shown that there is no one set pattern to develop a winning football team.

50. ENGLAND, Beverly A. *A historical study of the girls' physical education program at Mills Junior High School*. M.A. in Physical Education, 1973. 140 p. (D. R. Mohr)

An attempt was made to isolate factors which influenced change and growth in the program. The study included not only the PE program but related activities of adaptives, the GAA and the gym leader program. The time period covered was 1958 through 1971. It was found that the 1970-71 program was affected most by the development during the formative years of 1961-64. From that time on, growth took place only in relation to increased facilities and budget allocations. Administrative support and the work of dedicated, enthusiastic PE teachers contributed to the success of the program from 1961 to 1971.

51. FONG, Dexter. *A sociohistorical study of the California Nisei Athletic "AA" North-South basketball championship games for men from 1934 to 1971*. M.A. in Physical Education, 1973. 278 p. (D. R. Mohr)

The subproblems in this study included: identifying the leaders and organizers; identifying how the role of basketball has changed; noting the changes and differences between earlier North-South championship games and those in later years; identifying major events leading up to the initiation of the games in 1934; and noting the change of attitude toward the Japanese basketball program by surveying current and former participants and nonparticipants. Japanese-American newspapers, interviews, questionnaires, printed basketball programs, and private records provided the data.

52. MENDE, David T. *Five individualized instructional programs in beginning basketball for boys*. M.A. in Physical Education, 1973. 212 p. (B. A. Bartee)

Multimedia programmed units, titled Teaching Techniques to Individual Persons, were developed through extensive use of related literature. These covered the skills of: 2-hand chest pass, dribble, 1-hand shot, lay-up shot, and the pick and roll. Each TTIP included: a rationale, behavioral objectives, a pretest, learning activities, and a posttest. Each TTIP was developed using the branching method of presentation: film loops, colored slides, tape cassettes, and games were used as instructional tools in the activities. The materials were found to be suitable for use in teaching boys of ELE and JHS age.

**46 CALIFORNIA STATE UNIVERSITY, SACRAMENTO and SAN DIEGO
STATE UNIVERSITY, SAN DIEGO**

53. **MORRIS, Robert H.** *Evaluation of a play environment for blind children.* M.S. in Recreation, 1973. 168 p. (S. J. Kammeyer)

Judgments of persons qualified in training and educating blind children were used to test the hypothesis that a majority of this select sample would agree that the play environment developed for this study would be rated "effective" in helping blind children to develop in their play a greater degree of mobility and orientation capability. The data were collected through personal interviews at which each of the experts was given a prepared questionnaire form and then shown a recorded, slide presentation of the proposed play environment. In general, the hypothesis was supported by the data. There were areas of both agreement and disagreement over the scope of the design, the proper location, and the amount of supervision required for such a play environment for blind children.

54. **MOSS, Hugh T.** *A history of the Golden West Invitational Track and Field Meet from 1960 through 1968.* M.A. in Physical Education. 307 p. (H. H. Wolf)

Data for this history were obtained from interviews, Los Angeles and Sacramento newspapers, official meet programs, publicity bulletins, letters, and official records. It was concluded that this meet may possibly be considered the premier HS track meet of the U.S. This unique meet has been an incentive for many track athletes across the nation and has stimulated the growth of track programs. This meet was also a significant contributor to the continued improvement of the U.S. performances in the Olympic Games and other international competitions.

55. **RIEDEL, Eric.** *A survey of practices of swimming coaches concerning weight training programs.* M.A. in Physical Education, 1973. 62 p. (D. R. Mohr)

The coaches surveyed were members of the American Swimming Coaches Association. The hypothesis tested was that a majority of these coaches used, or would use, weight training programs because of their significant positive effect on swimming performance. This hypothesis was supported by the data obtained.

56. **STEINKE, Gerald E.** *A suitable development program for Donahue Park in Fair Oaks, California.* M.S. in Recreation, 1973. 100 p. (S. A. Walker)

Materials from published and unpublished sources were supplemented by a REC interest survey taken in the geographical area in question. Also used were professional opinions of 3 noted park and REC specialists and a professional landscape architect. Since Donahue Park was found to be a neighborhood park in the technical sense, it was concluded that it should be constructed as a typical neighborhood park. The plans for this development were presented in the thesis.

57. **STEPHENSON, Harold D.** *A brief history of pitching.* M.A. in Physical Education, 1973. 446 p. (H. H. Wolf)

This history included an account of the endeavor to balance pitching and hitting in baseball. Also traced were different techniques, styles, and types of pitches used over the years. Sources included official baseball rule guides, periodicals, newspapers, correspondence with baseball officials, materials in the Sports Expert Library of California State University at San Jose, related historical studies, and baseball publications. It was found that changes in rules, equipment and playing areas contributed considerably to the balance between hitting and pitching and to the success of pitchers. It was predicted that rules will continue to be changed in order to maintain the balance.

58. **WILKINSON, Deanna.** *The effects of social facilitation on the performance of the side step test and the standing long jump test.* M.A. in Physical Education, 1973. 62 p. (A. A. Bates)

JHS girls (N=90) in the 7th grade were tested under each of 3 social facilitation conditions: alone, audience (in the presence of 2 passive spectators), and coactor (in the presence of 9 active coactors). It was found that the performance of the side-step test was significantly better under the coactor condition than under the audience condition or alone. No significant differences were found for the performance of the standing long jump under the 3 social facilitation conditions.

San Diego State University, San Diego, California

(P. Governali)

59. **BERGER, Alexander C.** *Relationship of kicking game to selected performance variables of San Diego County High School football teams.* M.A. in Physical Education, 1973. (A. Sucec)

**SAN DIEGO STATE UNIVERSITY, SAN DIEGO, SAN FRANCISCO STATE
UNIVERSITY, SAN FRANCISCO, and UNIVERSITY OF SOUTHERN
CALIFORNIA, LOS ANGELES**

47

60. CATES, David A. *A history of golf at California State University, San Diego from 1936 to 1972*. M.A. in Physical Education, 1973. (P. Ciomerali)
61. FREY, Richard Dennis. *Selected socio-psychological characteristics of hockey, rugby, and soccer players*. M.A. in Physical Education, 1973. (D. Selder)
62. JOOS, David D. *A history of soccer at Acadia University in Nova Scotia, Canada: 1876 to 1967*. M.A. in Physical Education, 1973. (P. Ciomerali)
63. VERNER, William S. *A history of tennis at San Diego State University from 1921 to 1973*. M.A. in Physical Education, 1973. (P. Ciomerali)

San Francisco State University, San Francisco, California

(H. J. Cornacchia)

64. SCHOFEN, Delores C. *A comparison of the conceptual and body-systems approaches to nursing education*. M.S. in Health Science, 1973. 76 p. (H. J. Cornacchia)
The St. Joseph School of Nursing, San Francisco, Classes of 1970, 1971, and 1972, which were taught on a body-systems curriculum were compared with the Class of 1973 which was taught on a concept-oriented curriculum. There were no statistically significant differences among graduates of the 4 classes on either entering IQ scores or high school GPAs. There were statistically significant differences on later National League for Nursing Achievement Tests and State Board Examinations. In general, the class of 1973 not perform as well as the classes of the 3 preceeding years. Nonetheless, it was not possible to attribute the poorer performance of the class of 1973 to changes in curriculum.

University of Southern California, Los Angeles, California

65. DENEY, Sharon Kerr. *Bella Lewitzky: A description of her methods and views on performance and choreography*. Ph.D. in Physical Education, 1973.
66. FORTUNATO, Joanne. *Major influences affecting the development of jazz dance 1950-1971*. Ph.D. in Physical Education, 1973.
67. HARGADINE, Martha P. *Relationships between measure of self-actualization and evaluation of scope of movement*. Ph.D. in Physical Education, 1973.
68. JOHNSON, Christopher. *An investigation of a technique for the development of an accountability model for physical education objectives*. Ph.D. in Physical Education, 1973.
69. JOHNSON, Karen May. *The effect of passive audiences on the motor performance and autonomic arousal level of college women*. Ph.D. in Physical Education, 1973.
70. LOPIANO, Donna. *A modified delphi investigation of selected educational futures as they relate to long range planning in physical education*. Ph.D. in Physical Education, 1973.
71. MONTGOMERY, Richard. *Open administration: A qualitative description*. Ph.D. in Physical Education, 1973.
72. MOORE, JoDean. *Relationships among rest, reminiscence and retention in two types of skill learning*. Ph.D. in Physical Education, 1973.
73. RAVIZZA, Kenneth H. *A study of the peak experience in sport*. Ph.D. in Physical Education, 1973.
74. SMITH, John. *Retrospective interference in motor short-term memory: A test of Pepper and Herman's hypothesis*. Ph.D. in Physical Education, 1973.
75. STEPHENSON, Warren W. *A test of the generality of Fitt's law: Determination of the difficulty increment in selected target tasks*. Ph.D. in Physical Education, 1973.

**48 UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES, STANFORD
UNIVERSITY, STANFORD, and UNIVERSITY OF COLORADO, BOULDER**

76. SWOFFORD, Aileen M. *Administrative control and its effect on interpersonal behavior*. Ph.D. in Physical Education, 1973.
77. THIEFAULT, Charles. *Tachistoscopic training and its effect upon visual perceptual speed of ice hockey players*. Ph.D. in Physical Education, 1973.
78. TURNER, Fula, Eleanor Metheny. *Teacher-scholar*. Ph.D. in Physical Education, 1973.

Stanford University, Stanford, California

(J. E. Nixon)

79. EDWARDS, Loren Ron. *Changing teacher behavior through feedback from students. An intensive study of four physical education teachers*. Ed.D., 1973. (J. E. Nixon)

The study was designed as an exploratory experiment to provide additional information and understanding of the phenomena involved in changing teachers' behaviors through student feedback. Six basic questions were probed in order to generate basic factual data as a foundation upon which to base later research involving the testing of hypotheses. The intensive case design was used to clinically study 4 individual Ss. Two treatments were administered separately to each S. The treatments involved feedback to the teacher of each pupil opinion for a selected teacher behavior. Each teacher was given feedback (histogram of results) concerning his pupils' ratings of their actual and ideal teacher on 2 selected teacher behaviors: the amount of feedback given to students' performances by the teacher via praise or constructive criticism, and the amount of time provided for practice of physical skill without instruction. Students were asked to rate their teacher on a 6-point scale of behavior. (Very much like my teacher ... Very much unlike my teacher) 3 days each week for the selected teacher's behaviors. Generally, the Ss performances were lower for the feedback phase of the study than for the baseline phase. Evidence seemed to indicate that the students' opinions of the teacher's behavior on one selected item may have been affected by their responses, to his behavior on a second teacher behavior. The student's and master teacher's opinions of the teacher behavior were, in several instances, grossly different in both direction and degree. A review of the individual results could generally be interpreted as evidence that the students (as a group) were more accurate in their opinions than the individual master teacher in judging the teacher's actual behavior. There was a high level of agreement (direction and degree) between the students and supervisors for the ideal teacher's performance on the 2 selected teacher behaviors. The critical incident notebook was invaluable as an instrument for identifying the confounding factors of evaluation by pupils.

University of Colorado, Boulder, Colorado

(D. P. Mood)

80. BOGISICH, Randall K. *The relationship of a pre-instruction written test of physical ability to final class ranking in tennis*. M.S. in Physical Education, 1973. 61 p. (D. P. Mood)
81. BROWN, Sheila F. *The relative effectiveness of videotape feedback on the learning of a lacrosse skill by college women*. M.S. in Physical Education, 1973. 106 p. (W. Robichaux)
82. DIDDE, Teresa D. *The effects of a physical conditioning program on self-esteem and state-trait anxiety in college women*. M.S. in Physical Education, 1973. 86 p. (F. R. Bascom)
83. MITCHELL, Rosemary C. *The effects of two colors of tennis balls on the performance of a tennis rally task by college men and women of two skill levels*. M.S. in Physical Education, 1973. 80 p. (A. L. Sprague)
84. BLACK, Donald F. *Relationship of static torque to performance of age-group swimmers*. M.A. in Physical Education and Health, 1973. 48 p. (D. A. Kaufmann)

A comparison was made between the strength of the swimmers and a matched group of school children. Twenty-three age-group swimmers, 10 male and 13 female, were tested in static torque of the elbow, hip, knee, and shoulder joints while in a position representative of freestyle swimming arm stroke and kick. The maximum score recorded for each of the joints was accepted as the maximum torque. Twenty-two school children, 10 males and 12 females, were measured in precisely the same manner as the age-group swimmers. A *t* test was used to test for significant differences between the two groups. There were no significant differences between the two groups. A Pearson product-moment coefficient of correlation was calculated between torque measurements and performance times of the age-group swimmers. The

only significant correlation was between elbow torque for males and their time in the 100-yd. freestyle. Kendall's rank correlation coefficient was calculated between rank in performance and rank in torque. The only significant correlations were for females in the hip and shoulder torque.

85. BRICKHOUSE, George S. *Effects of lower and upper extremity training on selected measures of pulmonary function*. M.A. in Physical Education and Health, 1973. 51 p. (C. W. Zauner)
- The purpose of this study was to compare changes in pulmonary function resulting from 8 wk. of upper extremity training (arm pedaling), to those resulting from 8 wk. of lower extremity training (leg pedaling). Middle-aged men ($N = 18$) volunteered to participate in a physical conditioning program involving 8 wk. of arm or leg exercise and 4 wk. of detraining. The men were assigned to two exp. groups which trained either by leg or arm pedaling a bicycle ergometer, or they were assigned to a control group which did not train. Those who trained did so 4 or 5 days a week with each exercise session lasting 30 to 45 min. The men were given pre, mid, post, and detraining pulmonary function tests at 4-wk. intervals. The means of the repeated measure overall and for groups were analyzed by a split-plot ANOVA. Maximal voluntary ventilation was increased over the base measure after detraining when all subjects were considered as a single group. Other resting pulmonary function measures remained unchanged. Differences between the two training methods were not reflected by significant differences in selected pulmonary function measures.

University of Florida, Gainesville, Florida

(O. J. Holyoak)

86. BRZEZINSKI, Francis B., Jr. *The effects of an inseason weight training program on intercollegiate wrestlers*. M.A. in Physical Education and Health, 1972. 78 p. (H. A. Lerch)
- The purpose of this study was to determine if a regulated inseason weight training program affected 6 measures of torque and the maximum bench press of intercollegiate wrestlers. Varsity wrestlers ($N = 22$) volunteered to participate in this study. They were paired according to weight classes and studied under the exp. and control conditions. The exp. group trained with weights at least one-half hour per day twice each week for 9 wk. The control group participated in normal wrestling practice activities. Torque measurements in transverse abduction and adduction of shoulder, extension, and flexion of both the hip and elbow, and the maximum bench press were investigated on a pretest and posttest basis to determine the effects of inseason weight training. The data were analyzed using the ANOVA split plot analysis. Significant differences ($p < .05$) were found for torque measurements obtained in hip extension and hip flexion favoring the control group. The null hypotheses were not rejected for transverse abduction and adduction of the shoulder, elbow extension and flexion, and the maximum bench press.
87. BURNSED, Kenneth G. *Psychological effects of distance training on eight to twelve year old children*. M.A. in Physical Education and Health, 1972. 85 p. (W. Updyke)
- Subjects were divided into three groups: Group A ($N = 17$) underwent an 8-wk. distance training program, group B ($N = 28$) underwent an 8-wk. program which taught the fundamentals and techniques involved in sprinting and field events associated with track and field, and group C ($N = 29$), a 5th grade class from a local elementary school, served as a pure control group. R. B. Cattell's 14-factor Child Personality Questionnaire, Form A, was administered to all three groups immediately prior to and following the 8-wk. programs. An ANCOVA with the pretest serving as the covariant was used for analysis of all scores. Groups A and B scored significantly high ($\alpha = .05$) than group C on factor B, less intelligent versus more intelligent, following completion of the program. Also, females scored significantly higher ($\alpha = .05$) than males on factor D, phlegmatic versus excitable. No other statistically significant differences were obtained.
88. DONNELLY, Robert H. *Sociological implications of participation in interscholastic varsity football*. M.A. in Physical Education and Health, 1972. 62 p. (O. J. Holyoak)
- The purpose of this study was to compare differential perceptions of the social status of the interscholastic varsity football player as viewed by interscholastic football team members, 7th grade, 9th grade, and 12th grade students. A modified semantic differential, a rank order classification, and an information sheet were administered to the students and interscholastic football team members enrolled in a senior high school, a middle school, and a laboratory school in Alachua County, Florida. Data were analyzed by Biomedical Computer Program BMD07M, Stepwise Discriminant Analysis. Significant differences ($p < .05$) were found between interscholastic football team members and 7th, 9th, and 12th grade students in the areas of small group desirability, social acceptance, dating frequency, modesty, popularity of girls

dated, friendliness, popularity with girls, unselfishness, desirability at social functions, total realm of friends, and close friend desirability. Significant differences were dependent upon the grade level and school attended.

89. FESSLER, Robert W. *Effects of isokinetic training on electrical activity and static torque in knee extension*. M.A. in Physical Education and Health, 1973. 65 p. (D. A. Kaufmann)

Subjects ($N=19$) from the University of Florida track team and Florida Track Club participated in this study. They were randomly divided into an isokinetic training group, a dynamic training group, and a control group. The two training groups worked out 3 days a week for 8 wk. Torque measurements in knee extension on the right leg only and electromyographical data indicating electrical activity in the superficial muscles of knee extension were investigated on a pretest and posttest basis to determine the effects and differences caused by these 2 methods of training. The data were analyzed using a one-way ANOVA, t tests whenever necessary, and a Pearson Product-Moment Correlation. There were no significant differences ($p \geq .05$) found between groups in torque or between groups in electrical activity. There were also no significant correlations ($p \geq .01$) between torque measurements and electrical activity.

90. FUSARO, Gail P. *Development of an instrument to measure humanism in physical education*. M.A. in Physical Education, 1973. 68 p. (H. A. Lerch)

A measure of the humanness of the 7th through 10th grade physical education curriculum for girls was designed. This was accomplished by developing a series of statements that represent the humanistic and nonhumanistic aspects of physical education. A possible 111 statements were reviewed by a panel of experts from the University of Florida. Using the Thurstone Weighting Method, 50 of the statements were selected to be used in the instrument. The instrument was pilot tested in Ocala, Florida, using 150 teacher selected 7th through 10th grade girls to reflect their humanistic attitudes toward their physical education program. The test was readministered after a period of 3 days as a check to determine its reliability. The validity of the instrument was established by comparing the pretest objectives to the posttest results. The results proved 4 of the 14 factors to be valid. The factors involving self-actualization in physical education, awareness of others' feelings, the teacher, and participation and grading were proven significant.

91. GALBRAITH, Robert J. *Investigation of the use and nonuse of university student health services at the University of Florida*. M.A. in Physical Education and Health, 1973. 98 p. (D. A. Hicks)

The investigation presents a descriptive survey and analysis of experiences, perceptions, and needs of University of Florida students with respect to use and nonuse of the Student Health Services. A random sample of 417 currently enrolled students was selected for the study. Data were collected by means of a structured questionnaire which was administered by telephone interviews to 301 students, and by completion of a written questionnaire administered to an additional 116 students. All student replies were classified according to users (those who had taken advantage of available health services), and nonusers (those who had not taken advantage of available health services, although they were eligible). Factors of age-sex, college classification, financial status, source of support, and length of attendance at the University of Florida were found to be negligible influences on use or nonuse. Factors students considered to be negative influences were: atmosphere, quality of care, attitudes of friends, amount of time required to wait for services, and lack of knowledge of available services. Factors considered to be positive influences were: convenience of location, pre-paid and low-cost services, attitudes of staff members, and the wide variety of service available.

92. GEORGE, Leith E. *The personal construct system of a collegiate-professional football player*. M.A. in Physical Education and Health, 1973. 56 p. (O. J. Holyoak)

Identification of the subject's personal constructs was based upon a theory of personality developed by George A. Kelly. The Repertory Grid, a projective device designed to describe an individual's personal and social frames of reference, was used to evaluate dimensional strength of the constructs and their interrelationships. The period of investigation was 1 yr., from the termination of the subject's senior year in college football to the end of his rookie season as a quarterback in the National Football League. Constructs were elicited at the end of the subject's college career and reexamined after the first season of professional play. Data from the repertory grid and taped interviews revealed that the subject continued to enjoy football, be dedicated and devoted to the sport, maintain specific goals within the profession and for his lifestyle, retain a keen sense of competition in athletics and every day life, derive considerable satisfaction from performing well, winning, and being a success in his profession, and place a high priority on the personal and financial dividends of his profession.

93. GOATER, Pamela. *The effects of an aerobic training program on selected physiological parameters in children*. M.A. in Physical Education and Health, 1972. 88 p. (W. F. U'pdyke)

Two groups of children aged 8 to 12 participated in 2 separate 8-wk. track and field programs. Both groups met for 1 hr., 5 days/wk. Group I trained using overdistance and intermittent running methods, and were required to run a total of 100 miles during the 8 wk. Group II was skill centered with some sprinting, and running for warmup. Selected physiological parameters were measured pre and post, and postexercise urine samples were analyzed on 4 occasions. Using a *t* test, analyses were made of pre-post differences and mean differences between the groups. Areas that were considered included hematocrit, forced expiratory volume (FEV), weight, height, skinfold, obesity index, resting sinus HR, blood pressure, and EKG durations. The only difference between the 2 training methods occurred in the resting HR which was significantly lower in group I boys than group II boys. Also the group I boys displayed a significantly shorter R wave duration than the group II boys on the EKG. Pre-post increases in FEV and height were evident in both programs as were decreases in duration of the PR and P waves. The two groups both increased in FEV at 1 and 3 sec. Both groups displayed some traces of protein in the postexercise urine samples, but all resting samples were normal. The 2 programs did not differ significantly in stress to produce significant differences between the two groups in the majority of selected parameters.

94. LINDSEY, Rhonda A. *Mechanical analysis of skilled and unskilled golf putting techniques*. M.A. in Physical Education and Health, 1972. 54 p. (D. A. Kaufmann)

Subjects were skilled ($N=5$) and unskilled ($N=5$) golfers. Each subject executed 10 putts at a distance of 22 ft. Each putting stroke was recorded simultaneously by 2 low-speed 16-mm. cameras (24 fps). The resultant films were analyzed quantitatively and qualitatively. Some of the quantitative parameters which were observed for each golfer were: time of swing, displacement of backswing, forward press, radius of swing, stiffness ratio, and stoop ratio. Among the skilled golfers consistency was particularly observed for the time of downswing and the stoop ratio. Both skilled and unskilled golfers had similar variability of stiffness ratios. The qualitative results included the observation that 4 of the 5 skilled subjects initiated their stroke with a forward press, whereas, none of the unskilled group employed this technique. All skilled golfers demonstrated less head movement.

95. LONGMAN, Beverly A. *Effects of body conditioning on selected physical measures and body images based on personality types of college women*. M.A. in Physical Education and Health, 1973. 163 p. (O. J. Holyoak)

The subjects were 53 female students enrolled in 2 classes of body conditioning at the University of Florida. Pretest and posttest assessments were obtained for 6 body measurements, 6 physical fitness parameters, and 2 body image concepts. All data were analyzed on the basis of the Jungian preferences and personality types as measured by the Myers-Briggs Type Indicator. Statistical analysis included one-way ANOVA, chi square, multivariate analysis, and *t* test techniques. No statistical differences were found among the personality types on pretest assessment on any parameter. Significant ($p<.05$) improvements were found on selected physical fitness parameters by selected personality types. No significance was found among personality types on pretest-posttest differences on any parameter. Overall significant improvements were found on selected physical fitness parameters and actual body image.

96. MATHEWS, William H. *A cinematographical analysis of selected serves in racquetball*. M.A. in Physical Education and Health, 1972. 134 p. (D. A. Kaufmann)

This study analyzed and compared through cinematography the descriptive and quantitative dynamical variables of 3 selected types of serves in racquetball as demonstrated by skilled and unskilled male subjects. Four volunteers, 2 unskilled and 2 skilled servers, were filmed by three 16-mm. cameras (64 fps) which filmed from different viewpoints as the subjects served an average of 5 balls each of a power, lob, and 2-wall serve on a 3-wall racquetball court. Eighteen descriptive and 6 quantitative dynamical variables were analyzed individually with a slow-motion data analyzer projector. The results indicated that skilled servers employed an average stride in excess of 41% of their standing height, which was an average of 12% longer than the unskilled; skilled servers projected the ball away from the body toward the front wall on the ball release, whereas, the unskilled passively released the ball near the vertical in the vicinity of the feet; average ball velocities on the power serve from racket contact to front wall impact were 11 ft/sec or 7.5 mph faster in favor of the skilled subjects; and greatest velocities for the skilled on similar power serves exceeded 118.0 ft/sec or 80.4 mph. It was concluded that skilled servers employed longer strides, demonstrated greater displacements of the ball on the ball release, and generated greater average velocities on the power serve as compared to the unskilled servers.

52 UNIVERSITY OF FLORIDA

97. NELSON, Judith A. *The effect of modern rhythmic gymnastics, physical conditioning, basketball, and gymnastics on the physical fitness status and professed self concept of University Florida Freshman Women*. M.A. in Physical Education and Health, 1973. 133 p. (R. H. Alexander)

Subjects were 109 freshmen enrolled in the above rhythmic gymnastics classes during the Winter Quarter of 1972. The subjects were pre- and posttested with a 6-item physical fitness test and a semantic differential self-concept test. Significant differences ($p < .05$) were noted in 5 of the 6 physical fitness tests (sit-ups, vertical jump, bent-arm hang, Harvard step test, and trunk-hip flexion), and in 3 of the 12 self-concept tests (the special factor, myself as a person, and the special and evaluation factors, myself as a participant in physical activity).

98. NYE, Marilyn S. *A mechanical analysis of field hockey skills*. M.A. in Physical Education and Health, 1973. 77 p. (D. A. Kaufmann)

The purpose of this thesis was to compile techniques, perform a phenomenological analysis of the techniques and apply mechanical interpretations to 13 fundamental skills in women's field hockey using the deductive method. After selection of the skills to be investigated, the components of the techniques for each of the skills were determined by referring to existing references, viewing film loops and consultation with a knowledgeable jury of 3. Subsequently, block diagrams were constructed following the format of flow charts. Following the description of the skills, mechanical concepts were applied to each component of a skill. Finally, the interrelationships of the component parts were determined by the application of mechanical interpretations to each. Thus, 2 forms of describing a skill were presented; the verbal and the diagrammatic form. In addition, 2 forms of analysis of a skill were performed; the specific application of a phenomenological analysis to each component of a skill and the more general application of mechanical interpretations for determining the interrelationship of the kinesiological movements.

99. OGLE, Patricia T. *An historical descriptive study of the corner drugstore, Gainesville, Florida, 1969-1973*. M.A. in Physical Education and Health, 1973. 147 p. (D. A. Hicks)

The investigation presents a review in historical perspective of the conditions underlying the founding of the Corner Drugstore in Gainesville, Florida, from the time of inception in the spring of 1969 until June, 1973. All available data were collected which provided information related to the development of the Corner Drugstore, and an orderly and sequential interpretation was given of the concepts and philosophy leading to establishment and building development of the program; funding and financial status; target populations; selection, training, and utilization of volunteers; services and activities of the program; organization and administration; and community relations. Findings include problems encountered in establishing and operating the Corner Drugstore; the examination and assessment of program effectiveness; and the impact of this program on other community agencies. Directions and trends of the Corner Drugstore program in relation to the free clinic movement were given, and perspectives of developmental record are suggested for the development of similar free clinics in other communities.

100. PAGE, Betsy J. *Pulmonary function in age-group swimmers*. M.A. in Physical Education and Health, 1973. 45 p. (C. W. Zauner)

Child swimmers ($N=26$) of both sexes, ranging in age from 7 to 18 yr. served as subjects. The FVC, FEV₁/FVC, FRC, TLC, FRC/TLC, RV, RV/TLC, nitrogen washout (time to 2%, breaths to 2%, and volume to 2%), LCI, DLCO, PEF, MMF, and MVV were measured and compared to established predicted norms when such norms existed. Pearson Product Moment coefficients of linear correlation were used to estimate the strength of the interrelationships of the pulmonary functions. These coefficients were also used to related pulmonary functions to maximal oxygen uptake, measures of training, and measures of performance. There was no significant correlation between the age at the start of training and performance. The LCI of the swimmers was significantly less ($p < .001$) than the established norms and might account in part for the high maximal oxygen uptakes measured. There was no significant correlation between oxygen uptake and performance.

101. RADUNS, Linda. *The development of an instrument to measure value clarification in the area of ecology*. M.A. in Physical Education and Health, 1973. 57 p. (B. C. Smith)

This thesis describes the development of an instrument to measure the here and now status of the value clarification in the area of ecology using the 7 criteria in the process of value clarification set forth by Louis Rath. After administration of the instrument to 94 college students taking an elective Health Education course emphasizing value clarification strategies, the following hypotheses were confirmed: (1) the subjects did not hold clarified values in the area of ecology; (2) there is a difference in the value depending on whether it concerns what "others" should do, or the action the person himself is willing to take on behalf of the value.

102. ROBINSON, E. Suzanne. *Perceptual-motor development and reading readiness of elementary school children*. M.A. in Physical Education and Health, 1972. 75 p. (R. Alexander)

This study was developed to ascertain the potential value of daily physical education instruction, specifically emphasizing instructional units and activities, enhancing perceptual motor efficiency in elementary levels of education. Subjects were 57 kindergarten and 1st grade students at Myra Terwilliger Elementary School in Gainesville, Florida. The subjects were divided into 3 groups: group I served as the control group; group II was used as a control for the Hawthorne effect; group III was the exp. group. The exp. subjects were divided into 2 groups, 1 of 10 and 1 of 9. The 2 subgroups received half an hour of perceptual-motor instruction 5 days a week for 10 wk. The Gates-MacGinitie Reading Readiness Skills Test and the Purdue Perceptual-Motor Survey were administered before and after the 10 wk. program. Scores from all groups on the Gates-MacGinitie Test improved from pretest to posttest, however, no significant differences were found when applying the ANCOVA technique. Postscores were also raised on the Purdue Perceptual Motor Survey, with a significant difference among the groups noted at the .10 level.

103. SALZLER, Henry A. *A survey of the intramural and interscholastic programs for boys in selected high schools in the State of Florida*. M.A. in Physical Education and Health, 1972. 68 p. (R. E. Allen)

Selected variables of intramural and interscholastic programs for boys were investigated in high schools in Florida which conducted interscholastic activities. The variables selected were extent of participation, personnel, funding patterns, and programs. A questionnaire was mailed to 335 high schools, grades 9 to 12, which conducted interscholastic programs. The data were collected and grouped in 5 regions as defined by the Florida Association for Health, Physical Education, and Recreation. The results showed that 41% of the schools had intramural programs; the average proportion of student participation in all activities was 67% greater for intramurals than for interscholastics. It was also noted that the average amount of money allotted for interscholastic programs was \$12,948.11 more than the money allotted for the intramural programs, the average number of interscholastic coaches that were paid supplements was 11.92 people more than intramural personnel. In addition, it was discovered that the average number of coaches involved in interscholastics was 3.57 more than intramurals, physical education was the subject area taught by more interscholastic coaches and intramural personnel than any other subject area. It was concluded that there is a need for more and better quality intramural programs.

104. SLAVEN, Jarrett P. *A study of the personal constructs of an international distance runner using the Repertory Grid*. M.A. in Physical Education and Health, 1972. 50 p. (H. A. Lerch)

This study identified and evaluated the personal construct system of an internationally known distance runner during cross-country season using the Repertory Grid. Identifying the subject's personal construct system is based upon a theory of personality by George Kelly. The Grid, a projective instrument, was designed to understand an individual's personal social frame of reference and was used to observe changes in construct relationships. The 10-wk. cross-country season was divided into 3 units of time: preseason, inseason, and postseason. Constructs were elicited during a preseason interview and then observed for significant changes during the inseason and postseason using the Grid. Based upon the interviews and Repertory Grid scores the findings were: the athlete indicated competition aroused apprehension; he consistently saw himself as a competitor, confident athlete, and a champion; the athlete felt that being and remaining a superior distance runner was an important goal; the subject felt a need for individuality in order to excel as a superior distance runner; the subject felt that success, importance, enjoyment, and satisfaction were highly related to distance running.

105. VACCARO, Paul. *Changes in body weight, hematocrit and plasma protein concentration due to dehydration and rehydration in wrestlers*. M.A. in Physical Education and Health, 1973. 50 p. (C. W. Zauner)

This study examines fluctuations in wrestlers' body weight, hematocrit, and plasma protein concentration from the normal state to weight certification and just previous to competition. University of Florida wrestlers served as subjects. On the 2 competitive days the subjects were weighed 5 hr. before competition. Immediately following the weight-in, 2 capillary blood samples were taken from each subject's finger. Hematocrit was determined within 1 hr. of sampling time and plasma protein concentration was estimated within 24 hr. of sampling. These procedures were repeated 1 hr. prior to competition. In the interim the wrestlers had attempted to rehydrate. These same measurements were again made at the practice session and were considered as baseline measurements. Results of the analysis indicated that under competitive conditions wrestlers cannot regain in 5 hr. all the fluid which was lost in order to make weight. They thus enter wrestling matches in a state of relative dehydration.

Florida State University, Tallahassee, Florida

(P. W. Everett)

106. ALHEIM, William R. *An analysis of the effectiveness of traditional teaching, team teaching, and contract teaching methods of basic health education to junior college students*. Ph.D. in Physical Education, 1973. 191 p. (K. D. Miller)

Students ($N = 160$) enrolled at Miami Dade (North) J. C. served as Ss. Forty Ss were assigned to each of the 3 exp. groups and to the control group. Each group was administered the Kilander Health Knowledge Test at the beginning, and at the conclusion of a 16-wk. semester. Course evaluations were administered in conjunction with the posttest. A 15-item course evaluation questionnaire was utilized to elicit student observations regarding the contents, methods, and materials used in each exp. group, and to acquire information concerning student attitude toward the various teaching methods in general. Conclusions: contract teaching and traditional teaching methods are equally effective teaching techniques; the team teaching method is a less effective technique than either the contract or traditional teaching methods; black students have greater academic success when instruction is provided by the course contracting method of instruction; and the white American students possess the greatest amount of health knowledge upon entry and termination in basic HE.

107. BOURG, Martin S. *The effects of peer presence upon the learning of a gross motor task by third-grade children*. Ph.D. in Physical Education, 1973. 80 p. (K. D. Miller)

Third grade students, 45 boys and 45 girls, were used as Ss. The Ss were divided by sex and randomly assigned to 1 of 3 groups. Each group learned the task of balancing on the stabilometer either alone, in the presence of a peer of the same sex, or in the presence of a peer of the opposite sex. The Ss were given 15 15-sec. trials under the conditions of their assigned group. The 15 trials were divided into 3 blocks of 5 trials, and the M time-on-balance scores for each block were calculated and used in the analysis. Statistical analysis used a $2 \times 3 \times 3$ factorial design with sex, conditions, and blocks serving as the 3 factors. The results indicated that there was a learning effect, since the M time-on-balance scores on block 3 were greater ($p < .05$) than the scores on block 1. However, there was no difference ($p > .05$) from 1 group or sex to another, and no difference ($p > .05$) for the interactions between sex, groups, and blocks.

108. BUTTA, James C. *Effects of circuit weight training on the cardiovascular system*. M.S. in Physical Education, 1973. 95 p. (R. J. Byrd)

Students ($N = 49$) at Florida State University were randomly selected from a list of all male soph. enrolled during the winter quarter of 1972. Twenty-seven Ss who were randomly assigned to the exp. group participated in a 6 wk. program of circuit weight training and the remaining 22 Ss were assigned to the control group. Pre- and posttest measures were taken on: resting HR, and systolic and diastolic blood pressure; HR, systolic and diastolic blood pressure, and ventilatory minute-volume during steady-state exercise; max. HR, max. ventilatory minute-volume, predicted max. O_2 consumption; and physical work capacity; ventilatory minute-volume at each workload during the physical work capacity bout; and 3 measures of strength. The statistical treatment was a single-factor ANCOVA for each of the 15 variables. It was concluded that the 6-wk. program of circuit weight training was apparently of little or no cardiovascular benefit.

109. CARMIGNANI, George. *Learning activity modules for high school driver and traffic safety education: Their development and evaluation*. Ph.D. in Physical Education, 1973. 201 p. (K. D. Miller)

A systems approach model was utilized to identify and develop cognitive and psychomotor skills required of beginning SHS DE Ss. Thirteen tasks were hierarchically identified and modules were developed and sequenced, consistent with the identified tasks. Behavioral objectives and pre- and posttest evaluative instruments were written for each module. Appropriate instructional procedures and materials were selected for instructional purposes. Two groups, ($N = 3$) and ($N = 7$), received instruction during formative evaluation. After revisions were made to the instructional process, 19 Ss proceeded through the course of instruction during summative evaluation. The results of formative and summative evaluation revealed that the learning activity modules were effective in enabling students to achieve the posttest terminal criteria of 80% on a knowledge skills posttest and 90% on a psychomotor driving skills posttest.

110. GAUTHIER, Linda. *Students' and faculty's perception of nonverbal behavior of the recreation faculty at the Florida State University*. M.S. in Recreation, 1973. 63 p. (F. C. Cannon)

111. HOLLINGSWORTH, Barbara D. *The effects of performance goals and anxiety on learning a gross motor task*. Ph.D. in Physical Education, 1973. 78 p. (R. N. Singer)

JHS students ($N = 90$) who scored low-anxious and high-anxious on Spielberger's Trait Anxiety Inventory were randomly assigned to 1 of 3 treatment groups: control, verbal encouragement, and performance goal. All Ss were given knowledge of results. In addition, Ss in the verbal encouragement group were given verbal encouragement. Subjects in the performance goal group were given a specific goal to aim for, which was based on their performance in the preceding session. Subjects practiced the gross motor task, a 2-ball, preferred hand, juggling task, 5 min. a day for 12 days. At each practice session they also responded to the Spielberger State Anxiety Inventory. Conclusions: There is no significant difference in performance of the juggling task between Ss given performance goals, verbal encouragement, or no goals and no encouragement. Trait anxiety level is not significantly related to ability to perform a motor task. There is no significant difference in state anxiety scores under conditions of verbal encouragement, performance goals, or no goals or encouragement. A high relationship exists between state and trait anxiety scores. There is no relationship between anxiety state and performance for any 1 trial or for groups. With practice, as performance level increases, anxiety state tends to decrease.

112. MILES, Gloria Gladys. *An evaluation of the elementary physical education competency-based component in the Georgia educational model*. Ph.D. in Physical Education, 1973. 282 p. (M. V. Alexander and P. Everett)

Two teaching methods, competency-based modules and a traditional teaching method, were compared to determine which produced the most positive knowledge gain concerning the teaching of ELE School PE. The modules and the knowledge test, developed by Gohier in 1971, were a part of the Georgia Education Model for the ELE school teacher education program at the University of Georgia. Ss were students randomly enrolled in the methods class, teaching ELE School PE. There were 70 Ss in the exp. group (competency) and 32 Ss in the control group (traditional). All Ss were exposed to the same information, only the method differed. The same test served as the pretest and posttest measure. The t test, ANCOVA, and the Duncan Multiple Range Test were used to analyze the data. The pretest scores were used as the covariate. The M gain between the pretest and posttest M scores was significant ($p < .05$) for both groups; and the competency-based method produced a knowledge gain greater than the traditional group ($p < .01$).

113. NELMS, Angela. *Acquisition of information about recreational opportunities by model neighborhood residents*. M.S. in Recreation, 1973. 71 p. (F. C. Cannon)

114. PARRAMORE, Deborah. *The organization and training procedures of women's intercollegiate competitive swimming in American colleges and universities*. M.S. in Recreation, 1973. 71 p. (F. C. Cannon)

115. SPROLES, Charles B. *The effects of three levels of acute weight reduction and subsequent rehydration on selected cardiovascular responses in conditioned wrestlers*. Ph.D. in Physical Education, 1973. 88 p. (P. W. Everett)

The parameters selected were HR, systolic and diastolic blood pressure, cardiac output, cardiac index, SV, and stroke index. College wrestlers ($N = 14$) were subjected to 3 levels of wt. reduction—0%, 3.5%, and 7%. Each S was pretested (T1); given 72 hr. to reduce his wt. and tested again (T2); rehydrated during a 5-hr. period and tested a third time (T3), at each level. Weight reduction was accomplished primarily by thermal dehydration, and rehydration was induced. Cardiac output was determined by a CO_2 rebreathing method. Results showed that changes ($p < .05$) in HR and SV in response to dehydration were off-setting to the extent that cardiac output revealed only a slight downward trend. In general, 5 hr. and full fluid replacement were sufficient to return physiological responses to near normal levels.

116. SMITH, Robert E. *Analysis of the role behavior and role expectation of faculty athletic committees and faculty athletic representatives in national association of intercollegiate athletic colleges and universities*. Ph.D. in Physical Education, 1973. 535 p. (K. D. Miller)

The 558 NAIA institutions were each sent 1 role behavior questionnaire and 3 role expectation opinionnaires concerning faculty athletic committees and faculty athletic representatives. Athletic directors responded to the questionnaires, while presidents, faculty athletic representatives, and athletic directors responded to the opinionnaires. Seventy percent of the research tools were returned. The study sought to describe the recommended role behavior for both faculty athletic committees and faculty athletic representatives.

56 FLORIDA STATE UNIVERSITY and UNIVERSITY OF GEORGIA

in each of the following 4 types of institutions; small private, large private, small public, and large public. Descriptive statistics were used in the analysis to determine consensus findings. Recommendations were based on a combined weighting of both role behavior and role expectation. Comparisons were also made between role behavior and role expectations. Among the areas included in the study were the following: values, duties, responsibilities, selection methods, criteria for selection, length of terms, restrictions, orientation methods, and remunerations

117. WARREN, Linda L. *College women's ability to retain accurate estimates of their shoulder width after practice under static and dynamic conditions*. M.S. in Physical Education, 1973. 57 p. (J. Herkowitz)

Subjects ($N=34$) from the female undergraduate population at Florida State University during the fall of 1972 were randomly assigned to 3 groups. Eleven Ss practiced making shoulder width estimates on 3 consecutive days while standing on a stationary treadmill. Twelve Ss practiced 3 consecutive days while walking on a treadmill at 3 mph. Each S achieved her criterion score (an estimate within .25 in. of her actual shoulder width) 10 times each day. Eleven control Ss received no practice, but they did come to the testing area 3 consecutive days for the M amount of time required by the practice Ss on the corresponding days. All Ss returned the 6th day after their 3rd meeting day to make 1 estimate of their shoulder width (the retention check). The data were analyzed by the use of matched pairs t tests and Wilcoxon Rank Sums Tests. Results indicated that, while learning occurred among the Ss who had the opportunity to practice, there was no difference ($p > .05$) in the accuracy of the retention estimates of practice and nonpractice Ss. Also, no difference ($p > .05$) was found between Ss of the 2 different practice groups.

University of Georgia, Athens, Georgia

(R. T. Bowen)

118. ALBERTSON, Larry M. *Retention of a kinesthetic positioning response acquired under supplementary, auditory and visual feedback*. Ed.D. in Physical Education, 1973. 71 p. (R. T. Bowen)

The influence of supplementary visual and auditory feedback separately and in combination was measured on retention of a learned response in positioning a lever. Four learning groups ($N=31$) were used. Two-way ANOVA was used to test significance and the Duncan multiple R was employed to examine the source of significant variation. The auditory visual group displayed more positive errors and was significantly different from the auditory, visual, and control groups. There was a significant loss of retention at each retention trial. It was concluded that auditory-visual, auditory, and visual feedback treatments did not significantly improve or impair positioning accuracy.

119. JONES, John Christopher. *The origin and development of intercollegiate athletics at Carson-Newman College*. Ed.D. in Physical Education, 1973. 283 p. (R. H. Johnson)

A historical study of athletics at Carson-Newman was presented in the following eras: Early History 1851-1919, the Transition Period—1920-'39, the War Years and Building Period—1940-'59, National Acclaim—1960-'69, the 1970's, and the Future. Outstanding teams and individuals were given special recognition. In addition to the intercollegiate program, the study dealt with the intramural and club programs and the women's program.

120. McALISTER, James Douglas. *Development of guidelines for the effective planning and development of reservoir shoreline in Georgia*. Ed.D. in Recreation, 1973. 276 p. (B. W. Gabrielsen)

The present status of lakeshore controls as they affect recreation development was analyzed and guidelines in basic agreement with the laws of the state of Georgia were proposed. Information was obtained in regard to: current procedures that governmental and private reservoir operators were using; determination of the components that make up effective developmental controls; and the establishment of guidelines for the orderly development of reservoir activities. The instrument used was similar to one developed by the Water Resources Institute, University of North Carolina. A total of 53 reservoir managers representing 6 states were personally interviewed to obtain the data.

121. PALMER, Carl Grady. *Development and application of an instrument to measure health misconceptions among junior college students*. Ed.D. in Physical Education, 1973. 123 p. (R. T. Bowen)

A 150 item health misconception instrument for junior college students was developed and validated. It was administered to 374 Ss enrolled in 11 jr colleges in the University System of Georgia. Multiple

classification ANOVA was used to determine differences in health misconception scores and variables of race, college class, sex, marital status, religion, size of SHS attended, college attended, size of home community, previous health related courses and completion of a HS health course. Significant differences were found in race, class, completion of a SHS health course, previous college health related courses, and college attended.

122. RICHARDS, Marilyn G. *Effect of maximal stress exercise on determining aerobic capacity at varying levels of cardiorespiratory fitness*. Ed.D. in Physical Education, 1973. 82 p. (M. F. Vincent)

Physiological parameters were determined in 3 groups of college women by means of an exhaustive treadmill run, utilizing a continuous, multistage, maximal stress test. The exercise test was administered to 57 female Ss who were divided into 3 groups on the basis of extent and degree of participation in classes and the extracurricular activity of dance. A Quinton motor driven treadmill was utilized to elicit physiological responses of Ss to self-determined exhaustion. VO_2 was assessed at submax and max HR by means of a closed circuit system. HR was monitored continuously by means of a biotachometer with digital display. VO_2 was greater at max than at submax HR. No significant difference was found in VO_2 among the 3 groups. The duration of exercise up to and at max was attributed to greater fitness in terms of anaerobic capacity. No significant relationship was demonstrated between anaerobic and aerobic capacity. VO_2 was not significantly related with other physiological measurements.

University of Idaho, Moscow, Idaho

(G. H. Porter)

123. LATHEN, Calvin W. *Running programs and their effect on resting heart rate, body composition, and selected muscle weights in rats*. Ed.D., 1973. 58 p. (G. H. Porter)

Thirty-five day old male Sprague-Dawley rats ($N=54$) were divided into a control and 3 forced exercise groups. The 3 types of forced treadmill training were short continuous (SC), long continuous (LC), and interval (I) running. The exp. period lasted for 10 wk and all 3 forced exercise groups ran 3 day/wk. Percent body fat was determined by Soxhlet techniques. It was found that the exercised rats had less total body weight and fat free body weight than the control rats. The LC running group had less total body fat and % of body fat than any of the other groups. The control rats had greater heart weights than those of the LC and I groups. The gastrocnemius muscle weights of the control rats were greater than those of the exercised rats. These data indicated that the LC running group, which completed the greatest total work output, had the greatest change in body composition. There was no indication that exercise *per se* increased the heart or gastrocnemius weight. Muscle weight was highly correlated with the final body weight of the rat. No differences in resting heart rates were found between the groups.

Eastern Illinois University, Charleston, Illinois

(W. Buckellev)

124. FEHRENBACHER, James Leo. *A comparison of two explosive power tests for a variety of college athletes*. M.S. in Physical Education, 1973. 35 p. (M. T. Woodall)

Male college Ss ($N=69$) were selected from varsity basketball, wrestling, gymnastics, swimming, baseball, tennis, golf, and track teams. Each S was administered the Sargent Jump Test and the Margaria-Kalamen Power Test. A power index score, based on body wt., was determined for each S on each power test. A r matrix was used to determine the relationship to the Sargent Jump Test and the Margaria-Kalamen Power Test, and t scores were used to compare the athletic groups tested. There was a significant relationship between the Sargent Jump Test and the Margaria-Kalamen Power Test. Basketball players possessed significantly greater explosive muscular power than the distance runners, swimmers, gymnasts, wrestlers and golfers. Baseball players possessed significantly greater explosive muscular power than the swimmers, distance runners, wrestlers, gymnasts, and golfers. Distance runners possessed significantly less explosive muscular power than basketball players, gymnasts, golfers, tennis players, swimmers, wrestlers, and baseball players.

125. LANDMESSER, S. Marie. *An electromyographic study of the effects of lateral asymmetry on the upper leg muscles used in normal walking on a treadmill*. M.S. in Physical Education, 1973. 87 p. (H. Yingling)

Female college Ss ($N=25$) were screened to determine if they demonstrated 1/2-in. lateral deviation at the pelvic level. On this basis, 5 test Ss and 5 reference Ss were selected. EMG's of 5 muscles (biceps femoris, semitendinosus, sartorius, gluteus maximus, and gluteus medius--stance phase and swing phase

58 EASTERN ILLINOIS UNIVERSITY and GEORGE WILLIAMS COLLEGE

of each) were taken. Amplitudes for the action potentials of each of the 5 muscles of the 5 test Ss and 5 ref. Ss were computed. Results were compared between the 2 groups by the 2-way ANOVA. Girth measurements and strength measurements for the right and left leg of each S were taken and the results of the test group were compared with those of the ref. group. Lateral asymmetry has no effect on the difference of strength measurements and girth measurements between the right and left leg of Ss with lateral asymmetry and Ss without lateral asymmetry. The statement that there would be no difference in the action potentials of certain muscles in the upper leg of Ss with lateral asymmetry recorded electromyographically while S walked on a treadmill when compared with similar recordings of the muscle action potentials of the Ss with no lateral asymmetry of the pelvis must stand.

126. LEVY, Jenneth Joel. *A study of soccer goalkeeper restarts comparing two methods of throws and two methods of kicks*. M.S. in Physical Education, 1973. 37 p. (W. S. Lowell)

JHS Ss (N = 40) were randomly divided into 2 groups. Ss did not have previous coaching at the goalkeeping position. The test involved 2 phases: Phase 1 was an instructional phase and involved the teaching of the skills needed for the Ss to participate in the investigation. Phase 2 included the Ss performing the skills and the measurements of their efforts. Punt kick distance was significantly greater than drop kick distance. The baseball method of throw was more accurate at 45 ft. than the straight-arm throw. There was no sig. diff. in accuracy of throws by either method at the 75-ft. distance.

127. SEDIK, Robert V. *A study of the validity of two indirect predictors of maximal oxygen uptake*. M.S. in Physical Education, 1973. 48 p. (J. W. Sanders)

Male college Ss (N = 16) were placed in either a high-level fitness group (HLF group), or a low-level fitness group (LLF group). The 8 Ss in the HLF group were all long distance runners from the varsity track team. The 8 Ss in the LLF group were students who did not regularly participate in strenuous physical activity. Three diff. tests were adm. to each S within a 15-day period. During the treadmill test, 2 30-sec. samples of the S's expired air were taken and analyzed to determine O₂ and CO₂ content. The bicycle ergometer test was given for 6 min. with HRs taken the last 10 sec. of each min. on an EKG machine. The 12-min. run test was given on an outdoor track and the total dist. each S ran was recorded. The Cooper 12-min. run test is a valid indirect predictor of max. O₂ uptake at both high and low phys. fit. levels. The Astrand bicycle ergometer test is a valid indirect predictor of max. O₂ uptake at a high phys. fit. level. The Astrand bicycle ergometer test is not a valid indirect predictor of max. O₂ at a low phys. fit. level.

128. TOMLINSON, Stanley Joseph. *A comparison of various practice methods used in learning to shoot free throws*. M.S. in Physical Education, 1973. 87 p. (W. Buckellew)

Soph. SHS male Ss (N = 40) were divided into 4 groups of 10. All groups were given a 5-day practice period along with specialized instruction to all but the control group. Practice and testing continued for 10 wk. No sig. diff. was noted at the conclusion of wk. #1. Following wk. #4, the phys.-mental practice group and the mental practice groups showed $p < .05$ over the control group. Following wk. #7 the phys.-mental, mental, and phys. learning groups showed $p < .05$ over the control group. Following wk. #10 the phys.-mental and the phys.-learning group showed $p < .05$ over the control group. Comparison of M free-throw scores of wk. #1 with wk. #10 showed that the phys.-mental, physical, and mental learning groups were significantly improved with t ratios of 4.23, 3.93, and 2.92, respectively.

129. WEBER, Robert Charles. *A comparison of elapsed times for football place kicks and block rush attempts*. M.S. in Physical Education, 1973. 42 p. (W. Buckellew)

Two measurements were adm. One consisted of measuring cinematographically the time it took a football team and its opponents to attempt a place kick and the time it took to reach the point of blocking attempted place kicks. The other an electronic meas. of the time it took selected players to reach the point of block from a specific place on the line of scrimmage during practice sessions. The data from each of the tests were converted to .01 of a sec. and analyzed by graphing the findings. The time needed to kick a place kick ranged from 1.21 sec. to 1.96 sec. A player rushing the place kick attempt reached with his hands the point of block 11 sec. after the ball had been kicked and blocked the kick. It is possible for a player rushing a place kick to block an attempt when rushing rushing from an outside position on the line of scrimmage.

George Williams College

(B. L. Rothermel)

130. THOMAS, Howard. *A comparison of physical and intellectual scores*. M.S. in Physical Education, 1973. (D. Misner)

131. AEGERTER, Julia Joyce. *Human power in vertical jumping*. M.S. in Physical Education, 1973. 44 p. (C. J. Dillman)
Male Ss ($N=31$) were filmed at 100 fps. The best of 3 jumps and reach attempts and jumps with the arm against the waist were analyzed. Power was derived from work against gravity divided by acceleration time. The mean jump and reach height was 20.6 in. and the mean power was 3.83 hp. The r between height jumped and power was .18, the R was .75 for height jumped and .82 for power with mass, vertical displacement, and time during lower limb extension, and squared takeoff velocity as predictors. The mean height jumped with the arms fixed was 17.7 in. and the mean power was 2.99 hp. The r between height jumped and power was .24, but the R was .83 for height and .92 for power with the same predictors. Restricting the arms reduced both the jump height and the power. The nonsignificant r between power and jump height (.18 and .24) indicated that they were essentially independent. The dominant predictor for "accelerative power" was bodily mass and for jump height was takeoff velocity.
132. AUSTIN, David Ross. *The effects of insult and approval on aggressive behavior*. Ph.D. in Recreation, 1973. 70 p. (D. Bishop)
Male HS students ($N=32$) were assigned randomly to combinations of insult or no-insult by an accomplice while completing a self-esteem inventory and the experimenter approving or ignoring their performance during some simple physical tasks. Then S indicated errors by the accomplice in a standard task with an electric light or simulated shock of varying intensity. The shock was represented as noninjurious and its frequency and intensity provided indices of aggression. HR before and after insult, after exercise, and before and after error indication provided indices of arousal. Direct questioning during debriefing confirmed the efficacy of the exp. manipulations. Shock intensity failed to show any ($p>.05$) differences. Prior insult produced more shocks as expected although the difference from no-insult was not significant. Approval resulted in significantly more shocks than being ignored. Pretreatment HR for the insult and no-insult groups differed significantly. Correction with ANCOVA showed a ($p<.07$) significance for insult increasing and significance well beyond .01 for approval decreasing HR. Trend analysis of HR showed a significantly different arousal only for the insulted-ignored combination. The treatments did not affect self-esteem or alter aggression. Approval after insult did not mitigate aggression.
133. BONEN, Arend. *Effects of the intensity and duration of exercise on the rate of urinary free cortisol excretion*. Ph.D. in Physical Education, 1973. 139 p. (B. H. Massey)
Adult male Ss ($N=20$) were assigned to walk at 3 mph or run at 7.5 mph for 10 or 30 min. on a motor-driven treadmill with 0% grade. The subjects were tested twice with exercise and once without exercise. Urine samples were collected after an hr. of rest before exercise and at 30, 60, and 90 min. postexercise. Neither 3 mph walk altered cortisol excretion significantly. The 7.5 mph run for 10 min. increased cortisol excretion significantly relative to nonexercise. The 7.5 mph run for 30 min. produced greater cortisol excretion than the other 3 conditions and also produced a high r with relative exercise intensity ($VO_2/VO_{2\max}$).
134. BOYER, Michael Edgar. *The effects of heavy resistance training on vertical jumping ability and agility*. M.S. in Physical Education, 1973. 65 p. (B. H. Massey)
Varsity and junior varsity male basketball players ($N=20$) and students ($N=14$) of equal age were pretested in the Sargent Jump, Illinois Agility run, scramble test, 4-count Burpee, and leg lift strength. Half of the basketball team had 3 sets of 5 weight training exercises 3 times a week for 12 wk.; the other half and the PE students did not. The pre- and posttest r 's for all Ss collectively ranged from .73 to .92 and their mean gains were all significant (.01). The Sargent Jump, agility run, and scramble showed significant differences in mean mains (.05). The weight training group had the largest gain in the Sargent Jump and scramble test; the non-weight training group had the largest gain in the agility run and 4-count Burpee, and the PE only group had largest gain in leg lift strength although the weight training group was about 10% stronger on both tests. Weight training apparently increased jumping ability without impairing agility.
135. BUNKER, Linda Kay. *Psycho-physiological variables in motor task performance*. Ph.D. in Physical Education, 1973. 137 p. (L. J. Huelster)
Five 18-19-yr.-old male volunteers viewed a stylus maze with 10 cul-de-sacs for 30 sec. and then traversed the most direct route 20 times blindfolded with time KR during each 30 sec. intertrial rest. Heart and respiration rates, skin resistance, EEG (FZ-CZ and P3-O1 leads), and maze performance time and errors were recorded simultaneously. Tape-recorded EEGs were digitized and the mean power and frequency for alpha, beta, delta, and theta waves were derived by spectral analysis. Paired within S trial and rest

measures were compared with t and the within S variables over trials were correlated. Delta power and theta frequency were significantly higher (.01) during trials. Beta power and frequency generally increased during rest. Respiration was more rapid during trials. Skin response, HR, and theta frequency were significantly higher in later trials. EEG changes were greater for the more rapid and accurate S s, although the performance and psycho-physiological measures had lower r s. S s tended to have consistent but idiosyncratic response pattern. Time and error scores were highly correlated.

- 136 BURWITZ, Leslie. *Proactive interference and directed forgetting in short-term motor memory*. Ph.D. in Physical Education, 1973. 67 p. (J. A. Adams)

Right handed college students ($N=300$) were assigned randomly to 10 groups with 14 to 16 males and females in each group. A frictionless slide could be moved to a stop at 8 positions in 5-cm. increments from 5 to 40 cm. The S s were blindfolded; the stop was removed for testing, and error was measured in 1-cm. increments. The criterion task was to move the slide 20 cm. after a 5 or 90 sec. retention interval. The control group moved to the stop at 20 cm. and then tried to reproduce the distance. Proactive interference involved moving to the stop at 4 other distances prior to 20 cm. and instructions to remember all in reverse order. Forget early involved instructions to forget the 4 prior distances before moving to the stop at 20 cm. Forget late involved being told to forget all but the last distance 5 sec. prior to being tested. The absolute error analysis showed no difference between sexes and a significant (.01) effect for proactive interference and retention interval. But both were completely eliminated by the "forget early" instructions and significantly reduced by the "forget late" instructions. The present evidence indicated that S s could voluntarily set aside prior and potentially interfering responses and that the previous inconsistencies in related research resulted from procedural differences. The implications relative to various theories concerning motor and verbal forgetting were discussed.

- 137 CLARK, Bruce Arthur. *The effect of a systematic program of physical activity upon the total daily activity level and self-care personal neatness of a group of institutionalized geriatric patients*. Ph.D. in Physical Education, 1973. 94 p. (B. H. Massey)

Male ($N=11$) and female ($N=12$) volunteers with medical clearance were 2/3 schizophrenic but could communicate and follow instructions. They averaged 7 yr. of education, 24 yr. of hospitalization, and 69 yr. of age. Social therapy involved crafts, quiet games, and music. Physical exercise involved rhythmical and recreational activity of low and progressive intensity sufficient to raise the HR to 120 bpm. These programs ran 1 hr/day, 5 days/week for 12 wk. and initially involved 10 S s. Three were lost from the social group and 6 S s were used as controls. All S s were pretested and retested twice at the 8th, 12th, and 16th week. HR was recorded with an ECG at rest, at the end of 1 min. of stepping on an 8-in. bench at 12 steps/min., and at 2, 6, and 10 min. recovery. Balance was tested with the eyes open while standing on both toes, 1 ft., and 1 ft. on a raised beam 2-in. wide. Self-care, personal neatness, and daily activity level were assessed by nurses. Trends within and across groups were generally in favor of physical exercise but not significant.

- 138 COOK, Ronald John. *Development of a sixth grade knowledge test*. M.S. in Health Education, 1973. 117 p. (D. B. Stone)

A 65-item multiple choice test with 4 distractors concerning heart structure, function, diseases, and preventive measures was developed for use with an Elementary HE Curriculum Project heart unit. The test was administered to 132 students who had had the unit in 3 cities. The scores ranged from 15 to 54 with a mean of 33.45 and an average item difficulty of .51.54. The Kuder-Richardson-20 reliability was .692. Two-thirds of the items had unsatisfactory item difficulties or discrimination indices and the test was too long. The best 45 items were revised and the least effective distractor was deleted.

- 139 DAVIES, Bruce. *Norepinephrine and epinephrine excretions following rest and exercise in trained and untrained males*. Ph.D. in Physical Education, 1973. 120 p. (B. H. Massey)

Male S s ($N=28$) were between 22 and 39 yr. of age, normally sedentary and lacked previous systematic physical training. The exercise group of 18 S s ran and walked as far as possible 4 times/wk. for 12 wk. while maintaining HR between 150 and 170 bpm. The 10 controls continued normal activity. The mean gain in miles run of 1.45 from wk. 1 to 6 was significant (.05) but that of 15 from wk. 6 to 12 and the changes in weight and lean body mass were not. Duplicate HRs were recorded before, during, and after 15 min. of bicycle ergometer work at 750 kpm/min. and duplicate pre and posttest urine samples were collected at 0, 6, and 12 wk. The controls showed no change in exercise HR but the exercisers had significant (.05) mean decreases of 16 and 21 bpm from wk. 1 to 6 and 12. Significant resting and exercise norepinephrine excretions increased in the controls but decreased in the exercising S s over both the first and second 6 wk. Resting epinephrine excretions were nonsignificant, decreasing during

the first and increasing during the second 6 wk in both groups. Exercising reduced the epinephrine excretion during both 6 wk while the controls remained essentially constant so these differences were significant. ANCOVAs showed that training reduced the exercise epinephrine excretion significantly during the first 6 wk and the exercise norepinephrine during the second 6 wk.

140. GLASS, Gregory Charles. *The effect of exercise on atherosclerosis in the abdominal aorta and coronary artery of mature swine*. Ph.D. in Physical Education, 1973. 139 p. (T. G. Lohman)

Two groups of 8 each 3 yr old female swine on a high fat, cholesterol-free diet were matched on breed and body weight. One group exercised every other day for 4 mo. at 3 to 3.5 mph on a motor driven treadmill. The exercise reduced cholesterol and % fat significantly but not body weight, heart weight, plasma cholesterol, phospholipids, total lipids, or triglycerides. Atherosclerosis was lower in the coronary artery than the abdominal aorta and lower in the exercised animals than the nonexercised, although the exercise did not prevent or significantly retard atherosclerosis.

141. GIAMBRONE, Charles Paul. *The influence of situation criticality and game criticality on basketball free throw shooting*. M.S. in Physical Education, 1973. 45 p. (R. Martens)

Situation criticality depended on difference in score, being ahead or behind, time remaining, and whether one, one and one, or two free throws were involved. Game criticality depended on relative team standings, won-lost records, and games to be played. Criticality was assessed from play-by-play records of 52 varsity players attempting 2441 free throws in 67 of 80 games within the Big 10 during 1970. The free throws were 74% successful. The criticalities were reduced to high, medium, and low trichotomies. Chi-square comparisons within and across Ss on a made-missed versus trichotomy basis showed no variation or relation other than chance at the .10 level.

142. GIFFORD, Peter Barton. *The effects of high resistance and high repetition physical activity on the body composition of prepubescent boys*. Ph.D. in Physical Education, 1973. 198 p. (B. H. Massey)

Boys ($N = 31$) age 7 to 11 yr met for 2.5 hr, 3 times/wk for 10 wk of swimming and voluntary recreational activity. They were pretested twice and randomly assigned to 3 groups equated on fat free weight (K_{40}), $\dot{V}O_2$ max, leg strength, and the sum of 7 skinfolds. One group of 10 Ss worked on the bicycle ergometer for 20 min each session at 25 rpm and another group of 10 Ss at 75 rpm with high and low load eliciting about 65% $\dot{V}O_2$ max and equal work. Dual posttests showed that the two ergometer groups significantly accomplished more work/min and total work than the control group but did not differ significantly from each other. Submaximal HR and body composition measures showed no significant changes or differences across the groups.

143. GOVERNALI, Joseph F. *A model to forecast statewide secondary school health education manpower supply and demand under comprehensive school health education*. Ph.D. in Health Education, 1973. 196 p. (W. H. Creswell)

The current supply of active, inactive, and possible re-entering health educators, graduating majors, minors, and drop-outs, and out-of-state health educators entering the state was determined from a survey of about 15,000 teachers in Illinois exclusive of Chicago. Demand projections up to 1979-80 depended on the projected pupil/teacher ratio, teacher load, and implementation of the projected program. The extremes of the 32 different annual demand projections differed by a factor of 4 depending on manipulations of the pupil/teacher ratio, whether present trends continued or improved, and the rate of program implementation.

144. GROSS, Paul Munn. *Left ventricular systolic time intervals of diving bradycardia in man*. M.S. in Physical Education, 1973. 165 p. (T. G. Lohman)

Simultaneous recordings of the carotid pulse, phonocardiogram, and ECG from 15 male SCUBA divers were compared during 60 sec each of breath holding and simulated diving (towel containing crushed ice on face). Breath holding increased the left ventricular pre-ejection/ejection time 30% and the electroacoustical lag 9%. Simulated diving lengthened the isovolumic contraction time 41%, increased the pre-ejection time 14%, and the pre-ejection/ejection time 33%, but decreased the ejection time 9% and electromechanical systole 3%. Simulated diving increased ventricular contractile depression.

145. HOLLER, Harry James. *The structure and functioning of a golf and country club: a case study*. Ph.D. in Physical Education, 1973. 179 p. (G. Lueschen)

Data were obtained by documentary analysis, interviews, participant observation, and 277 responses to

62 GEORGE WILLIAMS COLLEGE

480 questionnaires. The club was the 3rd oldest and largest but 2nd in status and course difficulty of 8 in Edmonton, Alberta. The club was controlled by 300 shareholders but had an equal number of associates and encouraged play by others for daily greens fees. The annual dues for shareholder families were \$165. The primary reasons for joining were to play golf in a convenient location with friends and associates rather than for prestige or business purposes. The members varied widely in income, national origin, and religion. The club was primarily a democratic organization with some bureaucratic aspects. The primary social function was pattern-maintenance and primary personal function was expression.

146. KITTLESON, Sherwin Stanton. *An analysis of the preparation of Illinois public community college physical education instructors*. Ph.D. in Physical Education. 1973. 208 p. (R. H. Pohndorf)

The analysis was based on 296 of 453 usable questionnaire returns from PE instructors, department chairmen, and deans in 40 junior colleges and graduate faculty and chairmen in 8 Illinois universities. Community college instructors tended to favor subject matter, sports skills, and methods training along with practical experience while graduate educators tended to favor history, philosophy, and administration courses and thesis research for advanced degrees. Males generally rated practical aspects higher and programmed curricula and innovations lower than the females but factor analysis showed no unique preparation model. Most of the community college instructors were young, had masters degrees, and came from high school positions. Instructors who had had specific elements of preparation had significantly (.05) more positive opinions than those who had not on 32 of the 42 items and the instructors were significantly less satisfied than the graduate faculty on 34 of the 42 items. Cooperative effort in developing a curriculum seemed desirable and a suggested curriculum was presented.

147. KLEINMAN, Susan Phyllis. *An evaluation of the long range effects of 16 drug education workshops*. M.S. in Health Education. 1973. 93 p. (L. K. Olsen and D. B. Stone)

The 38-item drug attitude test administered before and after the workshops in 1970-'71 and mailed to the 280 participants with 87% response. The group means indicated positive attitudes but 13 were significantly (.01) lower than on both previous administrations. The greatest decrease was for "other teachers" who had the highest previous means. The changes were consistent for both sexes and practically all occupations and levels of education. The postworkshop involvement in local drug abuse programs varied from 27% to 79%.

148. LUNDHOLM, Jean Kay. *The upper limb actions during support sculling in three selected positions*. M.S. in Physical Education. 1973. 66 p. (H. M. Deutsch and J. E. Razor)

The arm action in inverted support sculling for maximal projection in the crane and bent-knee variant positions was analyzed from underwater movies at 32 fps. of 6 members of the Santa Clara Aquamaids synchronized swim team with the inverted tuck position as the control. The 12 indicative measures were compared with positions by subjects ANOVAs. The measures remaining essentially constant across positions were action sequence, distance hands travelled, amount of forearm pronation-supination, ranges of wrist and shoulder flexion-extension, and the average angles of elbow flexion and shoulder abduction. Measures differing significantly from the control (tuck) position were amount of humeral rotation, angles and ranges of wrist and shoulder flexion, and amount of elbow travel. The crane tended to elicit the greatest action because extending both lower limbs increased instability but differences between the crane and bent-knee variant were not significant.

149. MASON, David Craig. *Factors contributing to the discrepancy between current and desired practice of health education in selected secondary public schools in Illinois*. Ph.D. in Health Education. 1973. 279 p. (W. J. Huffman)

The samples consisted of 95 administrators and 114 health instructors in 101 Illinois public HS and 32 teacher trainers in 6 Illinois universities. All 3 groups were questioned concerning desired status and the health instructors were also questioned concerning current practices. Significant differences (.05) for 8 categories of desired status items were derived from an unbalanced ANOVA involving the 3 groups, 3 school sizes, 4 levels of preparation, and 2 sexes. Recommendations for reducing discrepancies between desired and current practices were developed by interviewing an administrator and instructor from the 10 schools with the greatest discrepancy

150. NEUTENS, James Joseph. *An evaluation instrument for appraising the dating, premarital, and marital related attitudes of educable mentally handicapped teenage students*. Ph.D. in Health Education. 1973. 96 p. (W. J. Huffman)

Standard test construction and attitude scale procedures were used to develop a 37-item instrument with subscales reflecting positive, negative, and potentially hazardous attitudes toward dating and marital relations

in the subject group. The instrument provided a basis for determining changes the related attitudes among FMHs and for evaluating the efficacy of related health instruction.

151. NEWELL, Karl Maxim. *Knowledge of results and motor learning*. Ph.D. in Physical Education, 1973. 116 p. (R. Martens)
Moving a frictionless slide 9.5 in. in 150 msec. precluded correction from proprioceptive feedback. Actual and estimated movement times in msec. were treated in terms of absolute error. Ss could see the movement and hear the microswitches. KR was verbal reports of the direction and amount of both errors. The right-handed JHS boys (N = 240) averaging 13.3 yr. of age were assigned randomly (20 each) to receive KR after all or none of 77 trials and KR added or withdrawn after trials 2, 7, 17, 32, or 52. Trials 3 to 77 were treated as 15 blocks of 5 trials each and the means were analyzed. Mean absolute actual and estimated error with complete KR both remained at about 15 msec. from block 1 to 15 but with no KR both increased from about 50 to 65 msec. Withdrawing KR after trial 52 showed no effect on actual or estimated error but earlier withdrawal produced progressively greater errors. Adding KR reduced both mean errors markedly in the second succeeding block and a decreasing reduction to about 20 msec. at the 5th block. Estimated error tended to be smaller than actual but adaptation to a change in conditions was rapid and Ss became internally consistent without KR. The evidence provided appreciable support for Adams' closed loop theory of learning but KR apparently either affected the supposedly separate recall and recognition memory traces in essentially the same way or they were basically the same since the actual and estimated errors within Ss were highly related.
152. PENWELL, Charles Ronald. *An evaluation of the physical education programs in the public elementary schools of Champaign, Illinois*. M.S. in Physical Education, 1973. 166 p. (J. E. Razor and M. Trekel)
PE teachers in the 15 schools completed the 1955 and 1968 versions of the Laporte Score Card No. 1 after detailed explanation. The earlier version was included to provide a comparison of 13 schools evaluated by Hamt in 1959 on the basis of ratings by principals. The 1959 study showed a range of effectiveness from 50.0% to 90.6% with a mean of 61.9%. The current evaluation showed a range from 44.0% to 92.9% with a mean of 62.8%. The changes of individual schools in effectiveness ranged from -28.0% to 40.2%. The major reason for lower than average ratings was inadequate indoor facilities and the major reason for negative changes was failure to revise curricula annually.
153. PERRY, Jean Louise. *Counselor preferences of female high school students in the state of Illinois*. M.S. in Physical Education, 1973. 66 p. (A. Cheska)
Questionnaires were administered to female students (N = 460) in the first PE class on a specified day at each of 15 randomly selected HS in Illinois. People with whom more than 50% of the students had discussed various problems during the year were in order their peers, parents, school counselors, and siblings. Their choice of counselors tended to follow the same pattern although the rank order varied depending on the type of problem. Their PE teacher was consistently the 8th or 9th choices except for problems of health and physical development. The traits desired in counselors were understanding, maturity, honesty, trustworthiness, and helpfulness. The related literature indicated that PE teachers served an important counseling role in the school but only 9% of the students had talked with their PE teacher about any problem.
154. PETERSON, Michael Wayne. *The segmental components in skilled baseball throwing*. M.S. in Physical Education, 1973. 40 p. (A. W. Hubbard)
Highly skilled baseball players (N = 20) including 9 pitchers with professional, semiprofessional, or university varsity experience were tested. They threw 5 times for maximum speed in a balanced Latin-square design after warmup and practice with no restraint and with the hips, shoulders, and wrist action eliminated by essentially rigid restraints. Elapsed time for 30 ft. of ball travel was measured with a special device. The respective mean velocities were 71.5, 45.3, 34.5, and 54.5 mph. The relative segmental components were for legs plus hip rotation 36.6%, trunk plus shoulder rotation 15.2%, arm without wrist action 24.4%, and wrist and hand 23.8%. The segmental contributions derived directly differed markedly from those reported previously based on cinematographic analysis. Wrist restraint made throwing highly erratic so wrist action was apparently the major factor in accuracy.
155. POLING, Dow Peter. *Undergraduate subcultural perception of intramural-recreational activity at the University of Illinois*. Ph.D. in Physical Education, 1973. 157 p. (D. O. Matthews)
Opinions concerning the values of intramural activity were obtained from 13 intramural directors and a random sample of undergraduates that included 185 participants and 215 nonparticipants. The sample

64 GEORGE WILLIAMS COLLEGE

also reported the amount and type of participation. The subculture orientations identified by Clark and Trow (1966) as academic, collegiate, nonconformist, and vocational were used. The housing subcultures were cooperative, fraternity-sorority, off-campus, and residence hall. Sex was not a significant factor in the perception of or participation in intramural activity, but the nonconformist and off-campus groups included significantly more nonparticipants. Objectives were ranked in essentially the same order by directors and students except that the students rated physical fitness and sport skills much higher and sportsmanship much lower. Collegiates showed a significantly greater preference for and participation in organized team activities and nonconformists for spontaneous and unorganized recreation.

156. **PREO, Lawrence Steven.** *A comparative analysis of current status and professional preparation of intramural directors.* Ph.D. in Recreation, 1973. 116 p. (D. O. Matthews)

Questionnaire returns covering personal history and present status, professional preparation and experience, desirable preparation and experience, and level of success were obtained from 285 of 415 National Intramural Association members. The 32 questions provided 185 descriptive variables. The top 15 members on the basis of honors and peer selection, however, could not be identified as statistically different from the rest on the basis of the data collected. Both groups concurred concerning the future requirements for intramural directors. Recommendations for professional preparation completely different from their own are being prepared.

157. **REYNOLDS, Ronald Paul.** *The operant training of creativity in children.* Ph.D. in Recreation, 1973. 101 p. (M. J. Ellis)

Motivational and informational theories of operant creativity training were tested with normal 4- to 5-yr.-old boys and girls ($N=75$) during informal play sessions. All transactions were recorded on videotape. Children in the training phase constructed and labelled block objects. The experimenter responded with random statements (noncontingent praise), positive statements for new object labels (contingent praise or praise with reasons (informational). Increased manipulation and utilization of the blocks with contingent praise and increased incidence of reinforced responses with informational praise during training tended to support the informational theory but the increases in new responses over random noncontingent praise were marginal. The treatments showed no evidence of transfer to the nonreinforced situation.

158. **ROBERTSON, Loarn Despard.** *The effects of two exercise routines on the medial rotator muscles of the knee.* M.S. in Physical Education, 1973. 96 p. (J. E. Razor)

Adult male ($N=22$) with no history of traumatic knee injury were pre- and posttested for knee rotator strength and flexibility and for knee flexion strength. Duplicate measures on the pre- and posttest gave reliabilities from .94 to .98 and the pretest F s were fractional and nonsignificant. One group (8 Ss) used 3×10 RM progressive resistance exercise 4 days/wk. for 6 wk. to develop medial rotator strength; another group of 8 Ss used a similar program to develop knee flexion strength, and 6 Ss served as a control group. Within group gains in medial rotator strength and flexibility from medial rotator exercise were about twice those from knee flexion exercise, although both groups gained significantly in both measures while only knee flexion exercise produced a significant gain in knee flexion strength. Comparisons with the Scheffé Test showed that the medial rotator exercise was significantly ($p < .10$) better than no exercise for developing flexibility and that the rotator and flexor strength gains were specific to the exercises.

159. **ROHRER, Susan Jane.** *An identification of basic administrative philosophies held by a selected sampling of college and university intramural administrators.* Ph.D. in Physical Education, 1973. 141 p. (D. O. Matthews)

Questionnaires were distributed to half of the directors who were members of the National Intramural Association to provide essentially equal samples from the 6 districts and 141 of 231 responded. The questionnaire elicited demographic data and measured philosophical positions ranging from Essentialism to Progressivism for 10 personal and 44 professional items with a 6-choice Likert Scale. The 7 demographic items failed to show any systematic relationship with or effect on the personal and professional philosophies of the directors. The directors tended toward the median (eclectic) philosophy and their personal and professional philosophies were essentially independent.

160. **SCHOLTZ, Gert Johannes Lindeque.** *Environmental novelty and complexity as determinants in children's play.* Ph.D. in recreation, 1973. 143 p. (M. J. Ellis)

Six groups of 5, each normal 4- to 5-yr.-old boys and girls in morning or afternoon sessions of a nursery school were tested. The groups were assigned randomly for a week each to low, medium, and high status play equipment complexity along 2 sides of a familiar playroom. An automatic 35-mm camera with a fish-eye lens recorded at 4-sec. intervals for 3 min. at the beginning, middle, and end of the

15 min. session on Monday, Wednesday, and Friday. Eleven dependent measures were derived from the film interaction with apparatus, individual, or group play in the open space, mobility, rate of mobility, resting, quiet play alone or with others, clustering, and dispersion. Greater equipment complexity increased apparatus interaction but decreased mobility, group play in the open space, individual play, and resting. Addition of novel objects increased these effects but repeated exposure over the week decreased them.

161. SELINGER, Anne. *The effect of exercise on postprandial lipemia*. M.S. in Physical Education, 1973. 104 p. (T. G. Lohman)

Postabsorptive blood samples were taken from 4 normal, male volunteers prior to a breakfast with 60 gm fat and at 3, 4, and 6 hr after. At 2 hr after ingestion the Ss had 0, 20, or 40-min work on a bicycle ergometer at 600 kpm/min. All conditions were repeated once on different days. Fat ingestion increased serum triglycerides significantly over preingestion levels at 3 hr, with no intervening exercise and at 3 and 4 hr with 20- and 40-min exercise. The lipid levels reduced but remained elevated at 6 hr and the residual for 40-min exercise was twice that for 0 and 20 min although none differed significantly from preingestion. Exercise primarily delayed rather than reduced lipid absorption.

162. STINSON, Craig Maxwell. *An examination of current implemented intramural programs in secondary schools of Champaign, Illinois, 1972-73*. M.S. in Physical Education, 1973. 85 p. (D. O. Matthews)

Questionnaires were distributed to 200 educational personnel with 170 returns, to 3 JHS and 2 SHS, and to random samples of 200 parents of students who had responded. The programs included 11 predominantly team sports and a few recreational sports although 88% of the girls opposed competing with boys. Only 65% of the parents knew what an intramural program was, but 90% considered it important. The programs rated below average because of minimal ratings for student participation in planning and administering programs, publicity concerning purposes and opportunities, and inadequate provision for corecreation and participation by handicapped students.

163. TEEPLE, Janet Bruce. *The influence of physical growth and maturation on the static force production of boys ages six through twelve years*. Ph.D. in Physical Education, 1973. 134 p. (B. H. Massey)

Peak force and maximum rate of force production from 3 trials at elbow and hand flexion in the preferred arm of 59 Ss were measured a week apart along with duplicate measures of standing and sitting height, upper arm girth, forearm and hand length and volume, and 2 skinfolds (for fat free weight estimates). Skeletal ages were based on hand and wrist X rays. The between days reliabilities for the growth and maturation data ranged from .95 to .99 and small but significant increases in standing and sitting height and forearm and hand length occurred over the 1 wk interval. The reliabilities of force measures within and between test days ranged from .77 to .97 with peak force being more consistent. Canonical r s between total body and limb measures were very high (.90, .93, and .83). Multiple r s showed that the critical predictors for hand and elbow peak force and rate differed. Early maturers were larger and exerted more static force than late maturers of the same chronological age but controlling physical growth statistically made the differences nonsignificant. Physical growth and maturation were influential in accounting for force production but maturation independent of body size was not a significant factor.

164. THOMPSON, Frederick Clarence. *Five concepts of leisure and their relationship to reported moods*. M.S. in Recreation, 1973. 36 p. (D. Bishop)

Leisureliness has been defined as involving active (vs. passive) participation, potential stimulation (competition or risk vs. routine), nonstructured (free choice vs. required), and intrinsic satisfaction (enjoyed vs. disliked). Males ($N=46$) and females ($N=34$) ranging in age from 18 to 65 yr were selected. They kept diaries in 15 min. intervals for typical work and nonwork days. They rated each interval on a 4-choice like-dislike scale, chose yes or no or prefer to do something else, and chose 2 of 30 positive or negative moods (scored from 5 for + + to 1 for - -). The work and nonwork days differed significantly (.05) in stimulation, nonstructure, and satisfaction, but not in participation. Analysis of mood variance showed significant differences in favor of stimulation (.05), nonwork (.01), and satisfaction (.001), but not for participation, nonstructure, or any of the 27 interactions.

165. WALKER, Champ Eugene. *Bibliography of sports: A classified list of all sports and sports related written in English and published in 1969*. M.S. in Physical Education, 1973. 89 p. (K. J. McCristal and A. C. Moore)

The 1,244 printed, bound, nonfiction, and nonserial publications with 8 or more pages were derived from 9 national bibliographies from English speaking countries. The 101 categories ranged from aeronautics

to Yoga. The largest single category was fishing with 78 titles. Soccer ranked third with 53 titles and baseball with 39 titles, cricket with 34 titles, and golf with 32 titles.

166. **WARDER, Donald Scott.** *Self-concepts and activity preferences of participants of seven organized summer outdoor residential camps*. Ph.D. in Recreation, 1973. 72 p. (D. Bishop)

Children ($N = 600$) with an age range from 7 to 15 yr. and 44% disadvantaged from the Chicago area in three 1-wk. and four 2-wk. camps were tested. Pre- and posttests of self-concept, ideal self-concept, and activity preference were given midway into each camp season. The M self-concept gains were small, nonsignificant, and slightly greater in the advantaged. Ideal self-concept remained essentially unchanged. Activity preferences for neighborhood indoor and outdoor activity increased significantly (.01) for both groups and camping durations but away-from-neighborhood preferences decreased. Greater gains in self-concept and activity preference were expected for the disadvantaged and the longer session, but only the advantaged group showed a greater self-concept gain with the longer session. The differences between camps for gains in ideal self-concept by disadvantaged campers were significant, but no relation to the % of disadvantaged in the camps was evident.

167. **WARREN, John Brooks.** *Effects of selected continuous and intermittent training programs upon cardiorespiratory function*. M.S. in Physical Education, 1973. 83 p. (R. A. Boileau)

Male Ss ($N = 24$) from 18 to 20 yr. were assigned randomly to continuous, intermittent, or no running 3 days/wk. for 8 wk. The continuous group ran 2 miles and 50 yd. and the intermittent group had 7 440-yd. runs with 82 yd. of jogging between. A standard treadmill test was administered twice before and after the training. One-way ANOVAs showed significant (.05) changes from pre- to posttraining measures except for the respiratory quotient. Subsequent Scheffé tests showed significant increases for both exercise groups over the control in ventilation, $\dot{V}O_2$ max, O_2 pulse, and maximal performance time and significant decreases in submaximal and maximal HR. The differences between gains for the 2 training groups were not significant.

168. **WATSON, Geoffrey Grayson.** *Game interaction in Little League Baseball and family organization*. Ph.D. in Physical Education, 1973. 328 p. (G. Lueschen)

The sample included 38 middle- and 37 working-class families involved and 20 middle- and 29 working-class families not involved in Little League. Data were collected by observation, interviews, and questionnaires during and after the playing season. The involved families were considerably more interested in sport and community activity than the noninvolved. Little League resembled the Anderson and Moore (1961) "autotelic folk model" in being intrinsically rewarding and socializing without serious societal consequences. Involved working-class parents concentrated on the games and valued training in cooperation and social control; their sons valued primarily belonging. Involved middle-class parents conversed more about current, nongame events and valued training in cooperation and physical skills; their sons valued primarily the display of skills. The absence of systematic differences between involved and noninvolved families in terms of the Farber (1960, 1962) typology for testing family integration during crises suggested that Little League was not viewed as a family crisis.

169. **WESSELS, Thomas George.** *Bibliography of sports: A classified list of all sports and sports related books written in English and published in 1968*. M.S. in Physical Education, 1973. 75 p. (K. J. McCristal and A. C. Moore)

The 882 printed, bound, nonfiction, and nonserial publications with 8 or more pages were derived from 9 national bibliographies from English-speaking countries. The 92 categories ranged from acrobatics-gymnastics to yachting. The largest single category was fishing with 78 books. Various types of football, American (34), rugby (27), and soccer (42), totalled 103 books.

170. **YERLES, Magdeleine.** *Social status and group status in high school basketball teams*. M.S. in Physical Education, 1973. 93 p. (G. Lueschen)

JHS and SHS students ($N = 304$) in Urbana-Champaign who were members of 12 interscholastic and 20 intramural basketball teams were tested. Questionnaires were administered in the latter part of the season. Each player indicated his father's occupation (social status) and rated all other team members on relative friendship, influence, contribution, communication, and overall (group) status. The correlations between social status and the group status items ranged from -.08 to .01 for the total and interscholastic groups but were all positive and slightly higher (.03 to .13) for the intramural teams so group status seemed essentially unrelated to social status. The group status items were highly related in the separate and combined groups, especially influence, contribution, and overall status with r s from .82 to .89, so group status was closely related to performance.

171. ZUCKERMAN, Hyman Joshua. *Observational learning: The effects of modeling processes upon motor skill acquisition*. M.S. in Physical Education, 1973. 40 p. (R. Martens)
Boys (N = 60) each from grades 1 and 2 averaging 8 yr. of age and from grades 7 and 8 averaging 13 yr. of age were tested. The task was to roll a 2 in. hard rubber ball 10 ft. along the floor and then up a 6 ft. inclined board so its furthest travel was to a 4-in. strip midway up the incline. Successive 4-in. strips were numbered consecutively as short (-) or long (+). The boys were assigned randomly (15 each) to view movies taken from overhead of 7 correct (within ± 1), incorrect (outside ± 3), learning (improvement over trials) sequences, or a film of equal duration of children playing (control). The Ss then had 50 trials. Algebraic, and absolute error means for blocks of 5 trials were analyzed, along with within S algebraic error intravariance. Three $2 \times 4 \times 10$ ANOVAs showed significances better than .001 in favor of the older boys and over blocks (learning, but the ps for treatments and interactions ranged from .10 to .99) so prior viewing of models of the performance had no beneficial or differential effect.
172. Omitted.

Northern Illinois University, DeKalb, Illinois

(M. N. Zimmerman)

173. COLLINS, Susan A. *Mental practice: A comparison of the effectiveness of four practice techniques on a specific motor task*. M.S. in Physical Education, 1973. 68 p. (M. N. Zimmerman)
High school females (N = 66) were compared on 4 different combinations of mental and physical practice using the Brio Labyrinth Maze. Data were analyzed via ANOVA. Three of the 4 combinations were significant ($p < .01$).
174. WAKERLIN, Marianne D. *A comparison of two methods of teaching gymnastics to college women*. M.S. in Physical Education, January 1974. 103 p. (P. Cunningham)
The learning of subjects (N = 61) was compared on 2 different methods of teaching gymnastics. No significant difference was found.

Southern Illinois University, Carbondale, Illinois

(R. G. Knowlton)

175. BROOKS, Lynette K. *The relationship of attitudes and performance of selected female gymnasts*. M.S. in Physical Education, 1973. 119 p. (J. Wilkinson)
A semantic differential was administered to JHS and SHS female gymnasts (N = 38). Concepts of coach A, coach B, coach C, Conditioning, Competition, Regulations, Practice, My teammates, My self, My success were measured on bipolar scales of Valuable-Worthless, Painful-Pleasant, Relaxed-Tense, Harmful-Beneficial, Positive-Negative, Unfair-Fair, Easy-Demanding, Boring-Interesting, Strong-Weak, Unpredictable-Steady. Analysis was by linear regression technique with significance set at .05. No significance existed between total mean attitude and average performance. Gymnasts indicating coach C as unfair scored significantly higher performances. Gymnasts marking Competition as unfair scored significantly higher performances. Gymnasts marking Regulations as painful scored significantly higher performances. Gymnasts who evaluated My self as valuable had significantly higher performances. Those marking My self as easy scored significantly lower performances. Gymnasts indicating My success as unpredictable scored significantly higher. The assistant coaches were not significantly more perceptive of attitudes than the head coach. The discrepancy scores of coach A and her group and coach B and her group were not significantly related to performance. The discrepancy scores of coach C and her group on coach B, Competition, My Teammates, and My success were significantly related to lower performances.
176. EVERHART, Mary Ann. *Evaluating selected free exercise skills in gymnastics*. M.S. in Physical Education, 1973. (J. L. Thorpe)
The primary purpose was to construct instruments which would assist the physical educator in evaluating the performance of the following free exercise skills: bridge, knee scale, standing scale, split, and v-sit. Secondary purposes were to estimate interjudge objectivity and within-day reliability, to compare group performances, and to establish norms. High school soph. and jr. (N = 96) women enrolled in physical education in 5 of the public schools in Columbus, Ohio, were selected and tested on each of the 5 skill tests. The 5 skill tests were found to be both objective and reliable for assessing the selected skills for the total group of subjects.

177. **GENAME, David L.** *Response of selected cardiorespiratory and blood acid base variables to sitting, walking and supine recovery.* M.S. in Physical Education, 1973. 96 p. (R. G. Knowlton)
The response of PR, blood pressure, \dot{V}_E , \dot{V}_{O_2} , \dot{V}_{CO_2} , RE, blood pH, P_{CO_2} , and BE values of well-trained individuals ($N=11$) to sitting, walking, and supine recovery treatments following maximal treadmill exercise was investigated. The duration of a second maximal treadmill performance following each treatment was also measured. The recovery of the blood acid-base variables following exhaustive treadmill exercise was enhanced more with the walking recovery, while the recovery of the cardiorespiratory variables was more efficient with the supine and walking treatments than with the sitting recovery. Duration of a second maximal treadmill performance was more favorable after the supine and walking treatments than after the sitting recovery. The duration of a second maximal performance was related to the extent of cardiorespiratory and blood acid base recovery following the initial exhaustive treadmill run.
178. **HOHM, John F.** *Comparison of varied training methods on maximum oxygen intake and related success in distance running.* M.S. in Physical Education, 1974. 77 p. (R. G. Knowlton)
Undergraduate students ($N=24$) enrolled in a PE activity cross-country class at Southern Illinois University were tested. Subjects were tested on 2 different occasions. They were preassessed for their cardiorespiratory capacity through a maximal treadmill run ($\dot{V}_{O_2 \max}$) and a timed 3 mile run. In an attempt to equate treatment groups, the initial results from the 3-mile run were used as a basis for the alternate placement of subjects in either a continuous or an intermittent distance training program. After the 10-wk training program, identical test procedures were administered to obtain the posttraining $\dot{V}_{O_2 \max}$ and other cardiorespiratory values. Both major variables studied showed improved but not significant ($p < .05$) results. For the limited distances used in the present study, the results support previous studies that when the total work was held constant, intermittent training offered no better results. Furthermore, improvements in running performance can occur without improvements in maximal oxygen consumption.
179. **KCHIFFER, Barbara A.** *A cinematographical analysis of the dance leap.* M.S. in Physical Education, 1973. 135 p. (J. A. Thorpe)
Subjects ($N=4$) performed 3 trials each for purposes of analysis. One intent was to determine what similarities existed in the performances of the subjects and if significant differences could be found as they related to the variables. A secondary aim was to study consistency among and within subject performance. The best performance is characterized by greater horizontal distance, greater vertical height, forward hip flexion, and back hip extension at the midpoint, and extension of the knees and ankles at the midpoint. The trunk was kept erect throughout the leap. Body lean at takeoff affected vertical height and horizontal distance achieved. Subjects are more consistent for body lean at takeoff, back ankle action, angle of the trunk and pelvis on the hip, vertical changes in the center of gravity. Subjects were not consistent for horizontal distance achieved, front knee action, front ankle action. Subjects are consistent within individual trials for horizontal distance, vertical height of the center of gravity, ankle flexion prior to takeoff, front and back knee action at the midpoint, and body lean at takeoff.
180. **KRALIK, Premysl K. A.** *Physiological and personality factors in the maximum two mile run with untrained subjects.* M.S. in Physical Education, 1972. 89 p. (R. G. Knowlton)
Male untrained ($N=20$) Ss were tested on a 2-mile run. Personality Research Form A and test of maximum oxygen utilization ($\dot{V}_{O_2 \max}$) were given. The slower runners ($N=9$) were found to be more impulsive than the faster runners ($N=11$) ($p < .05$); faster runners invested 93.9% of their $\dot{V}_{O_2 \max}$ while those slower 85.3%. The average speed of running individually compared to running in the group was found significant ($p < .01$) only for the group of slower runners. The significant correlation ($p < .05$) of the faster runners were found between $\dot{V}_{O_2 \max}$ —Achievement and Play, and between $\dot{V}_{O_2 \max}$ investment Exhibition, Play, and Social recognition.
181. **OBLER, Theodore.** *A comparative study of the facemask and mouthpiece as related to the assessment of exercise ventilation variables.* M.S. in Physical Education, 1973. 55 p. (R. G. Knowlton)
The results of 2 30-min. treadmill runs were used to compare an altered pilot oxygen mask to the conventional mouthpiece/noseclip method of collecting expired air. The variables of \dot{V}_E , \dot{V}_I , $\dot{V}_{E:I}$, RQ, \dot{V}_{CO_2} , \dot{V}_{O_2} , VE, HR, and a subjective evaluation were obtained from 13 subjects and compared using correlated t tests. \dot{V}_I tests. \dot{V}_I was found to be significantly ($p < .05$) greater with the facemask, while \dot{V}_E was higher with the mouthpiece. Although none of the other variables achieved significance, they were found to be greater with the mouthpiece. Due to a comfort factor, 11 subjects preferred facemask use.

182. SYMONS, Robert R. *Effect of wrist flexion hypertrophy on throwing velocity*. M.S. in Physical Education, 1973. (L. Good)

Baseball players ($N = 20$) were randomly assigned on an alternate basis to 2 groups: 1 a control group and the other the exp. group. Both groups were pretested for grip strength and girth measurements of the wrist and forearm of the throwing hand. Using cinematographic procedures, their throwing velocity was measured. The exp. group then went through a 9 wk. training period utilizing 2 progressive resistance exercises on the wrist flexor muscles. They trained 3 times a week for a total of 28 sessions. A posttest was conducted for their girth measurements of the wrist and forearm and grip strength using cinematography. Both groups showed improvement in throwing velocity. The exp. group obtained a significant increase ($p < .05$) in throwing velocity and grip strength which proved to be a significant relationship between the 9 wk. training period of the wrist flexor muscles and throwing velocity.

183. VELK, Frank. *An investigation to determine the knowledge of selected concepts related to heart disease and circulo-respiratory fitness*. M.S. in Physical Education, 1973. (P. Carroll)

Western Illinois University, Macomb, Illinois

(G. W. Hermann)

184. CASSELL, Stewart F. *A survey of rehabilitation techniques following traumatic injuries to the knee of the male in selected colleges and universities*. M.S. in Physical Education, 1973. 43 p. (R. F. LaRue)

A questionnaire concerning knee injuries and the type of rehabilitation program utilized was sent to 200 certified athletic trainers employed by colleges and universities in the U.S. The responses revealed that either the athletic trainer, the team physician, or both, were responsible for the rehabilitation program in 95% of the institutions surveyed. The Universal Gym was the most frequently used exercise modality, followed by the N-K table and an isokinetic machine. The principle of the DeLorme System was utilized by 77% of the athletic trainers. Isotonic exercise was the most commonly used type of exercise. Abduction and adduction exercises of the involved lower extremity were included in the rehabilitation program of 73% of the athletic trainers surveyed.

185. CRIST, Michael A. *Development and validation of a skill test for one-wall handball*. M.S. in Physical Education, 1973. 27 p. (G. W. Hermann)

55 ($N = 13$) participated in a round robin tournament with their average score per game used in establishing a tournament ranking. Upon the completion of the tournament a battery of test items including a volley, speed volley, kill shot, power, and a service placement test was administered to each S. The raw scores achieved were used in ranking the Ss according to their performance on each test item. Utilizing Spearman's rank difference r , the total test had an r of .92 when compared with the tournament rankings. The single test item achieving the highest r was the kill shot with a .85. The highest r obtained for a battery of tests was a .96 when the results of the volley, speed volley, and kill shot were compared with the tournament rankings.

186. DAGILL, Terry L. *A 1973 study of drug use at Macomb Senior High School*. M.S. in Physical Education, 1973. 44 p. (L. G. Brown)

A 1-page questionnaire was administered to 643 students to determine the prevalence and frequency of illicit drug use at Macomb SHS. The use of alcohol among the students represented more of a problem than the use of any other drug surveyed. The prevalence of the use of all drugs included in this survey revealed a trend toward an increase in use with an advance in the year in school of the students. The frequency of the use of tobacco, alcohol, and marijuana became greater as the students achieved a higher level in school.

187. DIETZ, Pamela S. *An evaluation of the status of the existing practices, policies, and procedures of the men's and women's intramural sports programs in Pennsylvania colleges and universities*. M.S. in Physical Education, 1973. 60 p. (J. A. Colgate)

Data were collected by means of an intramural sports score card sent to selected 4-yr. colleges and universities in Pennsylvania ($N = 44$). Comparisons were made between women's programs in small, medium, and large institutions and between women's and men's programs. It was concluded that the status of the men's intramural sports programs met the recommended score card standards more adequately than the women's programs. A comparison of the women's programs in each of the 8 score card divisions in regard to small, medium, and large institutions revealed no definite pattern as to M% of attainment achieved for any one-size institution.

70 WESTERN ILLINOIS UNIVERSITY

188. GONZALEZ, Marie E. *Programs and facilities in physical education for the educable mentally retarded in the public schools of Cameron, Hidalgo, Starr, and Willacy counties in Texas*. M.S. in Physical Education, 1973. 83 p. (J. A. Robertson)

Questionnaires mailed to 187 public schools in the 4 counties included in this study revealed that PE programs for the EMR were providing mostly games, physical fitness activities, team sports, and track and field activities. Individual and dual sports, aquatics, rhythms and dance, and stunts, tumbling, and apparatus activities were being offered on a very limited basis. There was a lack of facilities at the ELE level and some facility deficiencies at the JHS level. The HS level seemed to have adequate facilities for all types of activities except aquatics. Fifty-five% of the PE instructors were specialists.

189. HANSEN, Dennis L. *An investigation of the relationship between the Cooper twelve-minute run-walk test for cardiorespiratory fitness and the Astrand-Ryhming ergometry test of physical fitness*. M.S. in Physical Education, 1973. 29 p. (W. B. Bradley)

Ss were male PE majors ($N=21$) at Western Illinois University between the ages of 21 and 24 yr. Ss were randomly placed into 1 of 3 groups scheduled for the required tests. Members of the 3 groups were given 2 Cooper 12-min. Run-Walk tests and 2 Astrand-Ryhming Ergometry Tests in varying sequences. The reliability of the Cooper 12-min. Run-Walk Test was high ($r=.92$). The r between the Cooper 12-min. Run-Walk Test and the Astrand-Ryhming Ergometry Test was low ($r=.11$).

190. HITCHCOCK, Noel B. *The difference in times between two track starting positions—the standing and medium starts*. M.S. in Physical Education, 1973. 55 p. (G. W. Hermann and J. Sackett)

Ss were males ($N=16$) from the 1973 varsity track and field and football teams at Western Illinois University. After a brief instructional period on the 2 starts, Ss were pretested and following a 5-wk. training program on standing and medium starting techniques a posttest was administered. Times were recorded at block clearance, 15 yd., 30 yd., 45 yd. and 60 yd. ANOVA with repeated measures indicated that the 2 F values for the difference in M times between the starts, and the interaction between the M times of the starts by the M times of the 5 distances was not statistically significant ($p>.05$). Correlated t tests for differences between M gains revealed no statistically significant difference between the pretest and posttest M times at block clearance for the standing start ($p>.05$), while there was a significant difference for the medium start ($p<.05$). There was a statistically significant difference ($p<.05$) between the pretest and posttest M times at 30 and 60 yd. for the standing and medium starts.

191. MEYER, Ruth A. *The similarities and differences of expression through movement in dance and sports*. M.S. in Physical Education, 1973. 196 p. (K. M. Pearson and B. V. Yeager)

After examining some of the meanings of movement as expressed by selected performers in the realm of dance and sports, a model was developed with the general categories of achievement, role, and self-identity for classifying quotations. In order to identify common elements of expression, direct quotations which externalize emotional states were collected through critical examination of autobiographical materials. In sports and dance, the evidence from this study seems to imply that there are similarities of expression through movement in these activities. Certain differences also appeared to be in evidence.

192. NICKSON, Lois. *The relationship between balance and coordination skills and reading in first grade boys*. M.S. in Physical Education, 1973. 59 p. (J. A. Robertson)

First grade boys ($N=35$) were tested using the Bass Stick Test (lengthwise), a modified Bass Circle Test, the hurdle jump, and the Slingerland Screening Test for Identifying Children with Specific Language Disability. A subjective rating by the teacher placed the Ss in high, medium, and low achievement levels. A Pearson product r yielded significant r 's at the .01 level in dynamic balance and coordination. Static balance showed no relationship to the reading materials.

193. NOTTINGHAM, Larry P. *The effects of ankle strapping on speed and agility*. M.S. in Physical Education, 1973. 33 p. (R. E. LaRue)

Ss ($N=50$) were male students from PE classes at Western Illinois University who were measured on the Illinois Agility Run with ankles strapped and unstrapped. Three trials were administered with each treatment and the median score was chosen as representative. The M time for strapped ankles was 16.53 sec. while the M time for unstrapped ankles was 16.75 sec. The difference in times was statistically significant at the .01 level.

194. REIDINGER, Madeline R. *An individualized program in badminton for elementary school*. M.S. in Physical Education, 1973. 55 p. (R. Aten)

Three classes of Ss ages 9 through 13 were randomly assigned to either individualized instruction, traditional,

or no-instruction classes in badminton. Each S was pretested, administered a 3-wk. treatment, and posttested. A badminton volley test was used as the pre-post test. A one-way ANOVA indicated a significant difference ($p < .05$) between the pre- and posttest scores among the 3 groups. The Scheffé test revealed a significant difference ($p < .05$) between the traditionally taught group and the no-instruction group favoring the traditionally taught group. No significant difference was found between the traditionally taught group and the individualized instruction group or between the no-instruction group and the individualized instruction group.

195. SHIELY, Catherine. *Stride-length and leg-length and their relationship to cardiovascular endurance*. M.S. in Physical Education, 1973, 32 p. (E. A. Chapman)

Females ($N = 26$) had previously participated on the 1st or 2nd teams of intercollegiate basketball or track and field. Cardiovascular efficiency was assessed through the use of 2 submaximal treadmill walking tests. In the Balke 180 test the S walked at a speed of 3.5 mph with the incline of the treadmill increasing 1°/min. The S walked until her HR reached 180 bpm. The 2nd test required the S to walk 10 min. at 3.5 mph at a 5° grade. During this test each S was filmed from the side for mechanical analysis. Selected frames from this film were enlarged and the distances between the right medial malleolus and the left lateral malleolus was measured to determine stride length. Before the exercise leg-length was measured. The Pearson product moment r found no relationship between stride-length or leg-length and either measure of cardiovascular efficiency ($p > .05$). The relationship between the 2 submaximal walking tests was significant at the .01 level.

196. SITKO, Joseph M. *The construction of a treadmill test for highly conditioned individuals*. M.S. in Physical Education, 1973, 36 p. (E. A. Chapman)

Male Ss ($N = 90$) at Western Illinois University were randomly assigned to 1 of 3 groups. Ss in group A were tested and retested to determine the reliability of the Balke 180 Treadmill Test. Group B Ss were tested and retested to determine the reliability of the Running Test. Ss in group C performed both the Running Test and the Balke 180 Test for the determination of validity. Utilizing the Pearson product moment r , the reliability coefficient was found to be higher for the Running Test, $r = .9873$, than for the Balke Test, $r = .9496$. The validity coefficient between the Running Test and the Balke Test was found to be .8466. All measures were statistically significant at the .01 level. The M time to complete the Balke Test was 19.5 min., while the M time to complete the Running Test was 7 min. It was concluded that the Running Test constructed is both reliable and valid for individuals who are in a relatively high state of circulorespiratory endurance. Subjective evaluations found it to be more comfortable for the S and less time consuming than the Balke Test.

Ball State University, Muncie, Indiana

(P. W. Nesper)

197. MARSTON, Dwight H. *The relationship between selected individual factors and student opinions regarding the funding of intercollegiate athletics at Winona State College*. Ed.D. in Educational Administration and Supervision, 1973, 218 p. (D. Park)

A survey instrument was developed to obtain data concerning selected factors regarding each S's personal, academic, and socioeconomic background. The survey obtained S's philosophy and opinions toward intercollegiate athletics and their source of funding at WSC. The primary hypothesis stated there are no significant relationships between selected individual factors and S opinions regarding the funding of intercollegiate athletics. Sub hyp A stated there are no sig relationships between selected personal factors and S opinions regarding the funding of intercollegiate athletics. Sub hyp B stated there are no sig relationships between selected academic factors and S opinions regarding the funding of intercollegiate athletics. Sub hyp C stated there are no sig relationships between selected socioeconomic factors and S opinions regarding the funding of intercollegiate athletics. Analysis of the data revealed the 3 sub hyp could be rejected at the .05 level. On this basis, the primary hypothesis was rejected and it was concluded that there was a statistically significant relationship between selected individual factors and student opinions regarding the funding of intercollegiate athletics at WSC.

198. McCARTY, Judith A. *A survey of sexual attitudes and behaviors of selected undergraduates at Ball State University*. Ed.S. in Health Science, 1973, 127 p. (C. Carroll)

Undergraduate students ($N = 617$) were selected using the method of stratified random sampling proportional allocation of 5% from each of 4 college levels. Sexual permissiveness scales and sexual behavior inventories were administered to all Ss. Data were analyzed using χ^2 on variables such as age, academic field, college year,

72 BALL STATE UNIVERSITY, INDIANA STATE UNIVERSITY, and
INDIANA UNIVERSITY

membership in fraternities, religious affiliation, place of residence, GPA, yearly income of parents, and marital status. Little evidence from the study that would generally support a true dependency of sexual permissiveness on the demographic variables of the students with the exceptions of the variables of sex and religious activity. Males were more permissive in attitude than females, and the more permissive individuals were found to be religiously inactive rather than religiously active. Little evidence from the study that would support a true dependence of premarital coital experience on the demographic variables of the students. Over 50% of the females and 68% of the males studied had experienced premarital sexual intercourse. Evidence illustrates that a negative relationship exists between what the subjects stated as their sexual attitudes and what they stated as their actual sexual behavior. Attitudes were more permissive and the behavior demonstrated

Ball State University, Muncie, Indiana

(H. L. Jones)

- 104 YARIAN, Richard. *An evaluation system to determine the amount and kind of dental health instruction in the elementary science-health area*. Ed.S. in Health Science, 1973. 46 p. (D. Dennison)

Investigation of the influence of a 10-hr Teacher's Motivational Teaching Model (TMTM) on student teachers' teaching behavior. Ss were divided into exp. (N=46) presented a 10-hr concentrated unit in dental health consisting of operant conditioning principles, cognitive dissonance, and group decision making and control (N=44) receiving a more traditional unit in dental health. Student Teacher Observation Forms were developed to measure the effects of the TMTM on student teachers' teaching behavior. Significant differences resulted: exp. group spent more instruction time on facts/reasons and demonstrations in dental health than did the controls, more dental health facts/reasons and demonstration instruction occurred in the science-health instructional areas than outside the science-health area; exp. group used more dental health consultation services than controls. No differences were noted in the amount of dental health teaching materials utilized or in the proportions of time spent with fact giving and demonstration. Inclusion of instruction on dental health in teacher preparation courses in health science results in carryover into the public school setting.

Indiana State University, Terre Haute, Indiana

(J. H. Rogers)

- 200 SNYDER, Claire. *A study of the change in first aid knowledge of selected students at Indiana State University before and after a course of study and compared to national norms*. M.A. in Health Education, 1973. 81 p.

Students (N=206) enrolled in first aid courses were given a pretest at the beginning of the semester and a posttest at the end of the semester. Alternate forms of tests constructed by Dr. George Casperson were used. M and SD scores were computed. Content areas covered by questions were: needs and purposes of first aid, injuries to bones, joints, and muscles, dressings, bandages, and splinting, wounds, shock, circulation and control of hemorrhage, respiration and control of asphyxia, artificial respiration, poisoning, effects of abnormal temperatures, common emergencies, and transportation of the injured. There was a significant increase in knowledge of students at the end of the semester. Indiana State students scored lower than established national norms when compared to females, males, and total population.

Indiana University, Bloomington, Indiana

(J. M. Cooper)

- 901 AKPOGWEL, Patrick, Sapele. *Citizen participation in health care delivery aspects of the Indianapolis model cities program*. H.S.D., 1973. 128 p. (D. J. Ludwig)

This study was to identify methods by which citizens holding membership on the Model Cities Health Task Force Committee, of Indianapolis, could become a more effective force in shaping the density of its clientele. Subproblems inherent in this study were to: identify factors that contributed to stable participation and formulate guidelines for soliciting broad-based participation in model neighborhood health care programs. The data were collected by means of interviews, questionnaires, observation, and documents from 56 persons from model neighborhood election districts. Significant findings were: a satisfactory structural pattern of levels of administration was in existence; dissatisfaction was evident on the part of some citizens about their participation at the decision-making level of neighborhood programs; development of apathy on the part of some citizens in neighborhood programs was apparent; poor horizontal and vertical communication lines on programs were present and identification of selfless leadership at community levels was lacking.

202. ARNOLD, Nellie Webb. *An interrelated arts approach to awareness of selected composition components of art, music and dance*. Re.D., 1973. 262 p. (J. R. Maclean)

This study was to develop and present an approach to awareness through study of visual abstract images aesthetically perceived in nature and artistically produced from materials indigenous to nature. The approach was founded on the hypothesis that if the components theorized by Clifford's study as common to the 3 arts did have commonalities, artistic principles of composition that could be taught through aesthetic perception of the principles in settings relevant to the participant and to the artist. The participants studying in this approach could artistically apply the perceptual learning in one art medium and transfer that learning to the 2 other art media. An exp. population meeting criteria for the study was selected at random from the Spencer Public Library arts introduction series initiated for 4th through 6th jr. children. More than half of the children improved in use of all composition components in drawing, in use of 6 of the 7 composition components in three-dimensional design, in use of 4 of the 7 composition components in music. Half of the children improved in use of 2 of the 7 composition components in dance.

203. BARLOW, David. *Kinetic and kinematic factors involved in pole vaulting*. Ph.D., 1973. 212 p. (J. M. Cooper)

A biomechanical investigation of critical phases in pole vaulting as executed by various levels of highly skilled performers (collegiate, amateur, and high school) was conducted. Selected kinetic and kinematic factors involved in the running approach, pole plant, foot plant, and takeoff were obtained and recorded in successful vaults of 14 ft. and greater. Sophisticated electronic integration techniques were utilized in recording and relating mechanical parameters as measured for each individual performance. This study represents an attempt to precisely determine basic mechanical parameters as directly and indirectly recorded during critical phases of the pole vault. Previously no one had been able to record the direct application of forces as expressed in the literature as being the most crucial phases of the total performance. It was found that the pole vaulter not only attempted to maximize his horizontal velocity immediately preceding and during takeoff, but he also strived to achieve a large vertical component of impulse. The successful vaulter jumped at takeoff emphasizing great vertical impulse without minimizing the component of horizontal momentum built up in the run.

204. BATES, Barry Thomas. *The development of a computer program with Application to a film Analysis: The mechanics of female runners*. Ph.D., 1973. 193 p. (J. M. Cooper)

This investigation was to design, develop, validate, and demonstrate the applicability of a general purpose computer program to assist in making more accurate and complete kinematic analysis of movement skills using high speed film data. This latter phase of the investigation was to attempt to identify and describe the mechanical characteristics associated with the running techniques of 11 highly skilled female runners. The operations included were selected after a preliminary investigation which was primarily concerned with reviewing existing computer programs used by biomechanics researchers in analyzing film data and discussing with users their needs and desires. Filming was done with a high speed motor driven 16-mm. motion picture camera. The lens axis of the camera was positioned so that it was perpendicular to the plane of motion that was to be filmed. Each of the runners was filmed at 100 fps during an actual competitive situation. The computer program, FILMDAT, appeared to serve as a useful research tool in assisting in the analysis of film data. Similar but not identical right and left step temporal patterns were found for all phases and combinations of phases of running action.

205. BAUM, Robert Allen. *A health practice inventory to identify the health education needs of unmarried undergraduate college students*. H.S.D., 1974. 99 p. (J. K. Rash)

The Inventory of 113 statements of health practices was developed through information found in college health textbooks, health curricula, and other health sources. The inventory was administered to 425 students enrolled at Indiana University. The students responded to each item in agreement with what they did and not what they thought they should do. Reliability was determined by the test-retest Pearson r and Cronbach's Alpha. Reliability coefficients were determined for the total inventory, for each area, for each item within the area, and for each item within the total inventory. It was found that this health practice inventory is a valid and reliable instrument, it can be used by college students, can be used to ascertain health education needs of college students, will be of value in developing curricula, and can be administered by 1 instructor.

206. BISSFELT, Franklin Gene. *The effects of no warm-up, skill warm-up, and calisthenic warm-up on selected football skills, agility, and speed*. P.E.D., 1973. 100 p. (J. B. Daugherty)

The investigator wanted to discover the effect of no warmup, a skill warmup, and a calisthenic warmup on the football pass for distance, the football punt for distance, the football pass for accuracy, the dodge in as a measure of agility, the 50-yd. dash as a measure of speed, and football pass catching. Ss were

74 INDIAN UNIVERSITY

male undergraduate students at Kansas Wesleyan, Salina, Kansas and were placed into 3 groups with treatments randomized to each. All groups were identically tested under similar conditions to obtain an initial criterion measure. The order of testing the criterion measures was randomized. Following the initial measurements each treatment group took its specific warmup and then was retested on that specific criterion measure. ANCOVA was used to determine established significance among groups on the same criterion measure. All groups improved in performance on the criterion measures, except the control and calisthenic groups in the 50-yd. dash, and the control group in the football catches. This suggests that learning was taking place, regardless of treatment. In general the skill group performed better than the control or calisthenic groups. There was no warmup technique that was unique to all criterion measures.

207. BUTLER, Dona Jeannine. *A follow-up study of the recipients of the degree, Doctor of Physical Education, Indiana University, 1948-1971*. P.E.D., 1973. 226 p. (A. Aldrich)

The purpose of this study was to provide personal and professional information regarding the graduates, obtain judgments from the graduates concerning their acquisition of competencies and useful professional knowledge while pursuing the doctoral degree in PE, to provide data for the faculty for use in their continuous evaluation of the doctoral program in PE, and to provide a questionnaire by which the school may maintain communication with its doctoral graduates in PE. The instrument was a questionnaire divided into Personal and Professional Information and the Doctoral Program. Questionnaires were sent to 228 recipients of the P.E.D. degree. The data was presented by M of 4 groupings which were total population, population according to sex, population in six 4-yr. intervals, (based upon the year the respondents received the doctoral degree) and the population divided into two 12-yr. intervals. It was found that more than 50% of the Ss were employed by large- or moderate-sized public universities; 90% would again select Indiana University; the M number of years in which to complete was 5.2 yr.; aspects contributing most to the graduates' professional development were course work, association with instructors, and dissertation experience; M yr. of educational experience was 6.2 yr. for men as compared to 9.1 yr. for the women.

208. CAMPBELL, Barry Duncan. *Recommendations for the improvement of basic health instruction in Michigan community colleges*. H.S.D., 1973. 188 p. (J. K. Rash)

Marion T. Carr's *An evaluation instrument for the basic concentrated college health course* was utilized in this investigation. The interview technique was utilized to collect data from 20 Michigan community colleges. Considerable disparity existed between the scores of the lowest and highest ranking institutions. The M degree of attainment for all institutions was 5.70 on the 9-point scale. Less than 3 credit hr. were given in 30% of the institutions for completion of the basic health class. Research HE was practically nonexistent. HE was not accorded appropriate status. Some semblance of a course of study was evident at 17 of the 20 institutions. The equivalent of a master's degree in HE was held by 30% of the instructors. Students and resource people were not being involved in course planning. Topical areas of course content were generally diverse. Library and supplementary resource material was adequate. Lecture and/or discussion techniques prevailed. Written knowledge tests were most often used in the evaluation of students. The lowest ranking major area was relationships.

209. CHROUSER, Daniel Robert. *A trend analysis of the association between leisure time physical activity participation and increase in age of male Indiana University alumni*. P.E.D., 1973. 234 p. (G. F. Cousins)

The problem was to determine the leisure time physical activity participation rates of 4 selected age groups of male IU alumni, and to statistically analyze for trend the association between participation rates and increase in age. A questionnaire regarding 53 activities was devised which reliably yielded 12-mo. participation data in hourly form. A stratified random sample of 1,200 Ss was taken, consisting of 4 random samples of 300 male IU graduates. A nonparametric higher order trend analysis for independent samples was employed to test hypotheses stating no association between participation rates and increase in age. Physical activities considered singly showed a definite trend toward decreased participation as age increased. Levels of participation which remained constant as age increased were bait and fly casting, social dance, hiking, and golf. Total participation of males in physical activities decreases as age increases. Leisure time physical activity participation of males between 21 and 60 yr. of age was found to be high.

210. DAVIS, Michael Gary. *Role perceptions and expectations of college physical education chairmen's responsibility priorities by faculty and chairmen*. P.E.D., 1973. 357 p. (A. Aldrich)

A theoretical model was established to determine the relationships of role communication, expectation communication, role perception communication, sensitivity for the actual responsibilities, sensitivity for the ideal responsibilities, faculty satisfaction, chairman satisfaction, and philosophical agreement. Nine

colleges or universities offering a major were selected from Iowa, Wis., and/or Minn. Schools were sorted into enrollments of under 4,000, 4,000 to 12,000, and over 12,000. Three schools from each division were chosen. The faculty and chairmen were given a test concerning the faculties' and chairmen's perceptions and expectations of responsibility priorities of the chairmen. After Q sort scores were obtained, the weighted M and ranks were computed. Spearman's rank order correlational method was used to determine the amount of consolidation that existed within the 8 dimensions. The closer the correlations were to 1.000 the greater the consolidations for the dimensions. There were no general patterns of consolidations found within any of the 8 dimensions. No one responsibility was ranked either as a high or low priority. The levels of consolidations improved once the items were placed into the categories of administration, curriculum, public, and staff relations.

211. DISCH, James George. *A factor analysis of selected tests for speed of body movement*. P.E.D., 1973. 158 p. (C. H. Strong)

This study was to delineate the dimensionality of speed of body movement and examine the composition and interrelatedness of such dimensions. The theoretical model for this study was adapted from Fleishman's hypothesized domain of human motor performance. Eighteen variables represented the 6 hypothesized dimensions of speed of body movement, and were administered along with 5 anthropometric measures to a sample of 73 male Ss enrolled in the basic conditioning classes at IU. Multiple trials of the 18 variables were administered and trend-free measurement schedules were obtained for all variables. The 18 variable correlation matrix was then factor analyzed using 4 models and 2 rotational schemes. The domain of speed of body movement was found to be represented by the following dimensions: Sprinting Speed, Controlled Speed, Leg Speed, and Arm Speed. The variables selected to represent the speed of total body movement dimension were found to be composed of distinct components of the 4 robust factors, and components related to the specific tests. Three of the robust factors were related to 1 general hierarchical factor which accounted for approximately 1/3 of the variance in the factor space.

212. ELLENBRAND, Deborah Anna. *Gymnastics skills test for college women*. M.S. in P.E., 1973. 51 p. (T. A. Baumgartner)

Test items were selected by an analysis of the major gymnastics events for women. A rating scale for evaluation of execution of each skill was devised. Judgment by an investigator and evaluation by experts in the field resulted in the development of the final test battery. The test was administered to 56 college women. It was concluded that: The gymnastics skills test for college women is a valid measure of gymnastics ability, the skills test discriminates between various levels of ability in women's gymnastics, the skills test is an objective measure of gymnastics skills and can be scored equally well by examiners of various experience in women's gymnastics, the skills test is a reliable measure of gymnastics skills and can be expected to yield similar results when repeatedly administered in similar test situations, the skills test measure various aspects of women's gymnastics, the skills test can be administered in a class situation when the students and examiner are properly prepared for the procedures prior to the testing dates.

213. EPPERSON, Arlin. *A profile of selected personal and professional characteristics of recent graduates from recreation and park curriculums in the NRPA Great Lakes Region*. Re.D. 1973. 201 p. (J. R. Maclean)

A profile of recent graduates relating to their present status, was gathered and opinion relations to competencies needed for duties and responsibilities in first positions in parks and recreation was obtained. Response data from 770 graduates were tabulated, analyzed, and discussed for personal background, academic preparation, professional experience, open-ended questions, opinions on competencies necessary for job duties and responsibilities. Approximately 43% were no longer working in the field. Playground leader experience was the most often listed paid experience prior to graduation. Personal contacts were the primary source used in locating positions. More took positions in recreation or rehabilitation therapy than any other placement area. More than one-half took positions of an administrative nature. Budget and administrative problems were the most frustrating aspects of current positions. Practical experience and field work were the greatest strengths in undergraduate preparation. Rating the competencies according to their importance were administrative and supervision, programming, and 2 of the 3 public relations competencies were rated important by more than 50%.

214. FRATZKE, Melvin Reuben. *Discriminant analysis of intramural sports basketball officials*. P.E.D., 1974. 106 p. (C. H. Strong)

This research attempted to differentiate between superior, average, and inferior officials with regard to the following: personality factors, written knowledge test scores, basketball playing experience, and previous intramural basketball officiating experience. Data were collected on 89 Ss employed as intramural basketball

officials during the spring of 1973 at Indiana University. The following tools of measurement were administered: Cattell's 16PF Questionnaire, written knowledge test of rules and mechanics of officiating, personal data form indicating previous playing and officiating experiences. The Ss were rated by the intramural department. The Multiple Discriminant Stepwise Analysis statistical procedure was used to identify the characteristics or factors which tended to contribute most to discriminating between superior, average, and inferior officials. The data were cross-validated with similar data collected on 32 West Virginia University officials. There were personality factors which differentiate between superior, average, and inferior men officials. The scores on written knowledge examination of basketball rules and officiating mechanics does not contribute to being successful. Previous basketball playing and officiating experience contribute to success as an intramural basketball official.

215. FREDERICK, Tommy Lee. *A safety attitude scale for motor transportation operators*. H.S.D., 1973. 164 p. (B. I. Lott)

This study was designed to develop an instrument for use in measuring the direction and magnitude of the attitudes of semitrailer drivers. A measurement technique was accomplished by reviewing materials in psychology, health, PE, and motor transportation. The Likert technique of scale construction was used. A total of 11 content areas was selected from leading texts and manuals in the motor transportation industry. One hundred twenty safety attitude statements were developed from the 11 areas. Two pilot studies were conducted. A jury of Indiana University faculty aided in the refinement of the preliminary form. The form was subjected to Cronbach's Alpha to determine the reliability. Use of item analysis and internal consistency served to refine the individual statements for use in the scale. A jury of 15 experts helped develop a standard response. The procedures served to provide a basis for selection of 102 safety attitude statements and 101 standard responses. These statements and responses were retained in the final form of the Safety Attitude Scale for use by motor transportation operators.

216. HUMPHREYS, Melvin Austin. *An analysis of leadership characteristics of selected playground leaders in Memphis, Tennessee*. Re D., 1973. 109 p. (T. R. Deppe)

A survey instrument consisting of a biographical inventory, a sociometric rating scale, a leadership style questionnaire, and Cattell's 16 PF Questionnaire was administered to 250 playground leaders. A biographical inventory and sociometric rating scale were administered to 30 Ss to obtain a rating of the playground leaders on the criterion-effective leaders on the playground. A random sample of 177 playground leaders responses were selected for analysis of the data. Three groups were identified. The 1st group was identified by using the sociometric rating scale. The 2nd were considered effective or ineffective by their supervisors, the 3rd by choosing those rated effective by both the sociometric scale and supervisor ratings. The data were analyzed to determine biographical and personality characteristics and leadership styles. Leadership characteristics depicting playground leaders vary according to the group perceiving the leaders. Sociometric and supervisor ratings, when pooled, yield a more representative partitioning of effective and ineffective playground leaders than when singularly used.

217. KEIHN, Dennis Joseph. *The effectiveness of three methods of physical education instruction in power volleyball skills at the college level*. P.E.D., 1973. 118 p. (J. B. Daugherty)

Three volleyball classes at IU were each randomly assigned a different method of teaching. The classes were taught by the programmed instruction method, programmed instruction with media, and the traditional method. Ten Ss were randomly selected from each class. The 1st week the students were given Shondell's Four-Item Test Battery for predicting the potential volleyball playing ability (medicine ball toss, 30-yd dash, zig zag run, and wall catch) to determine if the treatment groups were initially equal in ability. They were then subjected to an 8-wk. course in volleyball with the investigator teaching all 8 groups, using a different method of teaching with each group. The intraclass r technique and the Pearson product-moment r technique were used to estimate reliability and validity for the tests. A one-way ANOVA was performed on the composite skill test scores and the students' composite scores from the judges' ratings to see if there was any difference among the methods employed. The application of the one-way ANOVA to the composite skill test scores and the students' composite scores from the judges' ratings indicated that there was no significant difference among the 3 methods of teaching.

218. KETLINSKI, Randolph C. *Teaching strategies and student achievement as related to learning concepts of skeletal muscular contraction*. P.E.D., 1973. 124 p. (J. M. Cooper)

Teaching strategies employed in this study were: in-class lecture; programmed, and classical textbook, abstract, and journal approaches. A pretest was developed and validated by a jury of 5 experts. The pretest was administered to all Ss. Individuals in the 3 treatment groups proceeded through their respective

treatments and were given a posttest at the conclusion. The identical test was used for pretest and posttest. The one-way ANOVA was employed to detect differences between pretest treatment group M₁ and posttest treatment group M along with Tukey's test for detecting specific differences between treatment group M. The lecture and the programmed text approaches are an equally effective means of presenting materials of skeletal muscular contraction. The programmed text approach and text book approach were also an equally effective means of presenting material.

219. McAULEY, Janet Elizabeth. *An electromyographical investigation of the biceps brachii muscle in flexion of the forearm under varying conditions of speed, weight and hand position*. P.E.D. 1973. 93 p. (A. T. Slater-Hammel)

The purpose of this investigation was to determine the function of the biceps brachii muscle in its action at the elbow under varying conditions of sex, hand position, speed, weight and trials and to determine the interrelationships of these variables on 24 subjects. The records were read using transparent overlays upon which there were calibrated values in microvolts. The area read on each record was from the beginning of movement until the subject's arm reached a 90° angle. The highest peaks in this area were used as a measure of the subject's performance. These values were summed and averaged for each task, and used in all subsequent calculations. The Pearson product-moment coefficient of correlation for the record reading technique was .96. Order of presentation of the tasks did not influence performance. Sex and trials considered alone did not have a significant effect on the analysis. Hand position, speed, and weight considered alone did have a significant effect on the analysis. The supine hand position, the heavier weight, and the faster speed were favored. Sex and hand position, speed and sex, hand position and speed, hand position and weight, and sex hand position and speed were significant interactions.

220. MARTEN, Dwaine J. *Selected personality factors and incidence of drug use*. H.S.D. 1973. 134 p. (J. Keogh Rash)

One purpose was to determine the differences in demographic background, socioeconomic status, drug socialization, motivation of use, and religious interest of drug users. The study was limited to appraisal of selected personality factors and a broad category of drugs (coffee, tea, alcohol, marijuana, amphetamines, barbiturates, hallucinogens, acids, and the opiates). A drug information questionnaire and the Omnibus Personality Inventory form F were administered to 165 students. Groups were: One (N=32), currently using marijuana and 1 or more additional illegal drugs; Two (N=27), currently using marijuana, and/or hashish only; Three (N=65), currently using coffee, tea, cigarettes, or alcohol, and Four (N=41), students who did not currently use drugs. Chi square and rank order correlations were employed to test the hypotheses proposed from the drug information questionnaire. Step-wise Multiple Discriminant Analysis was used to analyze the responses from the OPI Form F. The study of behavior patterns of parental use of alcohol, tobacco, coffee, and prescribed drugs does have the potential to predict future drug use. The OPI can discriminate between users and nonusers; predict future drug use; classify students; and identify personality differences.

221. MEIER, Joel Francis. *Recipients of the Master of Science Degree in Recreation at Indiana University: An analysis of their backgrounds, motives, professional aspirations, and educational experiences*. Re.D., 1973. 359 p. (T. R. Deppe)

Data were collected by use of a questionnaire mailed to the graduates and information obtained from the files of the Graduate Division of the School of HPER. The data were arranged into frequency and % tables and selected responses were weighted for purposes of analysis. The χ^2 test of independence was applied to the data to determine whether the responses of the graduates were associated with 9 different variables. The graduates had a high degree of personal satisfaction with their chosen professions and had assumed positions of high responsibility in the field of Rec and other occupations. Many of the graduates' professional areas of interest had changed since receiving the master's degree. The Dept. of Rec. and Park Adm. and its faculty members were held in high esteem. In addition, the majority of graduates indicated a high degree of personal satisfaction with most aspects of the master's degree program and were generally quite satisfied with recreation as the field for their master's degree study.

222. OSENDORF, Frank Philip. *The effects of time devoted to health instruction in selected Minnesota public high schools*. H.S.D., 1973. 85 p. (J. Keogh Rash)

The 77 schools used in this study were placed into one of 4 plans based upon the number of class periods devoted to direct health instruction. Stratified random procedures resulted in 29 schools in plan I (144 class periods), 25 schools in plan II (162 or 180 class periods), 11 schools in plan III (198 or 216 class periods), and 12 schools in plan IV (270, 288, or 360 class periods). A standardized test was mailed to each of the 77 schools. The test was administered to 12th grade students. ANOVA was

applied to the means accumulated from the schools. It was found that pupils who received health instruction under plan II obtained significantly higher M scores on Seffrin's Standardized Test of Health Education Objectives In The Cognitive Domain than pupils receiving instruction under plans I and IV. There were no significant differences found in M scores of pupils receiving health instruction under plans II and III, plans I and III, and plans III and IV. No meaningful comparisons within and among the scheduling patterns found in each of the 4 plans were possible.

223. PASVOLSKY, Richard Lloyd. *Developing environmental perceptivity in early childhood*. Rd.D., 1973. 331 p. (J. R. Maclean)

This study focused on the organization of a curricular plan, based on selected key concepts, designed to develop environmental perceptivity in 1st grade children. A theme encompassing central ideas found in literature relating to environmental education and 4 key concepts within the scope of that theme were framed. A series of 10 percepts relating to each of the 4 key concepts was isolated after a jury of 8 environmental educators were consulted. A 12-wk. course of study based on the selected percepts was formulated and presented to 25 1st grade children of rural Frankford Township, N.J. An oral test, consisting of 13 performance objectives based on the selected percepts, was formulated through the action of a jury of 3 early childhood educators and administered to the Ss before and after they participated in the course of study. A ratio test was computed for the difference between the means of the pretest and the posttest to determine whether or not significant gain was indicated. The results of the test were compared with those of classroom observation recorded by the teacher. The instructional materials and techniques developed for use in this study were effective in developing environmental perceptivity in the Ss. The multidiscipline approach was indispensable to the teaching of the environmental course of study, and in turn, all disciplines of the total 1st grade curriculum were enhanced by the environmental program.

224. PEDERSEN, Erik John, Jr. *A study of ball catching abilities of first-, third-, and fifth-grade children on twelve selected ball catching tasks*. P.E.D., 1973. 216 p. (A. T. Slater-Hammel)
Boys ($N=100$) and girls ($N=100$) from each of the 1st, 3rd, and 5th grades served as Ss. The 600 Ss were selected from the Ypsilanti Public School System in Ypsilanti, Mich. All Ss were given 12 ball catching tasks. Consistent rating conditions for all children on all tasks was accomplished by devising a ball dropping apparatus and rebound board. The varying catching conditions which were created by the apparatus included varying lateral rebounds, varying distance rebounds, floor rebounds, and ball flights with no floor rebounds. Ball catching performance was judged according to a 5-point scoring scale based on the degree of refinement of the catching attempt. A $3 \times 2 \times 12$ factorial arrangement, with repeated measures on one of the 3 factors, was the design used. When a significant difference was obtained on 3 or more factors, Duncan's New Multiple Range Test was employed. A 5% level of significance was used for all statistical comparisons. It was concluded from the results that the catching development of young children has been inaccurately assessed by investigators.

225. PICK, Diane Carol. *College and University Outdoor Education Centers--present status and recommendations for the future*. Re.D., 1973. 156 p. (T. R. Deppe)

A preliminary survey instrument was sent to representatives from 102 colleges and universities. Responses were received from 101 of the total institutions contacted in the study. Ten schools met the following qualifications for a major center: in use year round; had resident facilities; had a director who had as his primary responsibility the administration and supervision of the center; served a single institution of higher education; and was associated with Recreation, Outdoor Education, or related departments or division. Forty-five institutions had centers which did not meet all 5 of the qualifications, and 46 schools had no outdoor education center (but 6 of these had centers in the planning or construction stage). It was determined that outdoor education centers are important in providing concrete experiences in the natural environment as a part of college and university outdoor education curriculums. Also, it was found that few colleges or universities in the U.S. have developed centers that meet all 5 qualifications established by this study for utilization of a major center. There was no trend as to the type or size of colleges or universities having major outdoor education centers.

226. SANNER, Janice Elaine. *Stroboscopic photography as an instrument for investigating human movement*. P.E.D., 1973. 143 p. (J. M. Cooper)

The purpose was to study the type of multiple-image stroboscopic still photographs that may be employed in the study of human movement and to investigate their analysis possibilities. An attempt was made to determine if stroboscopic still photography is a simple and feasible instrument to use in aiding coaches, teachers, researchers, and individual performers in analyzing human movement. Female ($N=30$) from

Indiana University were photographed, 3 advanced and 3 beginning performers in the golf swing, tennis serve, dance leap, basketball jump shot, and softball pitch. A General Ratio 1540 Strobolume was the stroboscopic light source. The time between images, distances, velocities, accelerations, angles of projection, range of projected balls, time of flight for projections, resultant velocities and angles of impact, and position of projected balls at specific distances were computed. The results indicated that multiple-image stroboscopic still photography is a simple and feasible instrument to use in analyzing human movement.

227. SINN, Lionel Lee. *A comparison of the tactual and kinesthetic senses in good and poor basketball shooters*. P.E.D., 1973. 102 p. (T. Baumgartner)

Tests were constructed to measure tactile discrimination and kinesthetic judgment. Tactile discrimination was measured by a 3-part test containing 87 items. Braille and sandpaper were used to evaluate form, structure, and texture discriminations in active touch. Kinesthetic judgment was measured by a 5-part test. A gravity protractor, electrogoniometer, spring scale, and goniometer were some of the equipment used to administer the tests of kinesthesia. Ninety Ss from 20 Indiana HSs participated in the study. There were 3 treatment groups: good shooters, poor shooters, and nonathletes. It was found that there was no significant difference between good shooters, poor shooters, and nonathletes in the sense of touch. There was no significant difference between good shooters and poor shooters in the sense of kinesthesia. Both good shooters and poor shooters were significantly better than nonathletes in the sense of kinesthesia.

228. STEPHAN, Sheryl Jo. *Analysis of recreation activities in resident outdoor schools with inferences for the objective of education for leisure*. Re.D., 1973. (J. R. MacLean)

This study was to investigate current practices in and opinions toward appropriate recreation activities in resident outdoor schools, and to determine implications for the objective of education for leisure in this setting. A 60 card Q-sort of recreation activities used in outdoor school programs was developed and refined by a jury of experts. Data concerning the opinions of outdoor educators toward appropriate recreation activities in the outdoor school setting were collected from 28 resident staff teachers in 12 outdoor schools, and from 14 members of the jury of experts. Comparisons were made of the membership composition of each opinion cluster including such factors as size of the group, sex, educational background, and region of the U.S. in which members were located. Data concerning the operation of the outdoor schools were obtained from the administrator of each program, including statement of the outdoor school objectives, statements of support or non-support of principles of recreation programming, the availability of environmental areas, facility types and equipment, and the use made of these areas, facilities, and types of equipment. It was found that the American School objective of education for worthy use of leisure is not a fully accepted obligation of the schools in resident outdoor education programming.

229. VALLIERE, Andre. *Kinetic and kinematic analysis of the backward giant swing on the still rings in gymnastics*. Ph.D., 1973. 133 p. (J. M. Cooper)

This study was concerned with constructing, testing, and integrating strain gauge transducers to obtain the instantaneous radial forces exhibited during the execution of a backward giant swing on the still rings in gymnastics. Biaxial cinematograph procedures were used to secure the kinematic data. The validation objective as well as the interpretation of the force behavior was facilitated by the use of synchronization procedures which enabled the investigator to relate any frame of the film to its corresponding point on the force curve. It was found that a large difference in the shape of the curve existed when superimposing the forces obtained by the strain gauge transducers and the forces obtained by differentiation method. The main kinematic finding was that the straight arm group attained larger measures of movement amplitude than did the slightly bent arm group which in turn had larger values than the bent arm group. The straight arm group attained larger mean peak force values at selected points during the movement than did the slightly bent arm group which in turn had greater mean ratio values than the bent arm group.

230. VAN OTEGHEN, Sharon Lea. *Two speeds of isokinetic exercise as related to the vertical jump performance of women*. P.E.D., 1973. 123 p. (A. Aldrich)

Training was limited to leg press exercises which were performed on isokinetic speed controlled exercise machines. Speeds were controlled at 4 sec. and 2 sec. for a single leg press repetition. Forty-eight women varsity and B team intercollegiate volleyball players from 4 universities served as Ss. An isokinetic training machine designed to operate at 1 speed was placed in each of 4 schools. Ss at 2 schools were randomly assigned to either a control or fast speed isokinetic group. Ss from the various schools were combined according to treatment effect for final groupings used for comparison purposes on the vertical jump measure scores. For the strength measure, combined slow or fast speed S groupings, from either of the 2 schools to which these treatments had been randomly assigned, formed a group which was compared to a combined control group from the same 2 schools. The slow and fast speed isokinetic groups were superior to the

80 INDIANA UNIVERSITY and PURDUE UNIVERSITY

control group on vertical jump performance. No significant difference existed between the 2 exp. groups. The slow speed isokinetic group improved more in strength than did the control group.

- 331 WARD, Paul Earl. *An analysis of kinetic and kinematic factors of the standup and the preferred crouch starting techniques with respect to sprint performance*. P.E.D., 1973. 245 p. (J. M. Cooper)

Selected kinetic and kinematic characteristics of 2 techniques of sprint starting were examined. Exp. equipment utilized in this investigation included: force starting blocks, oscillograph, multiple digital timing clock, phototransducers, starting gun, LOCAM camera, and other equipment necessary for cinematographical recording. Indiana University track sprinters ($N=11$) were employed as Ss. After the training period each S ran 2 trials using both exp. starting techniques. Timing was implemented by deploying phototransducers at successive 10-yd. distances over 100 yd., while kinetic factors of the starting action were recorded through the use of force starting blocks and the oscillograph. Also, the starting action for each trial was photographed by high speed cinematography. It was found that the use of the standup start by skilled sprinters is more effective than the sprinter's crouch starting technique in producing shorter running times to each successive 10-yd. distance of a 100-yd. sprint.

- 332 YARBER, William Lee. *A comparison of the relationship of the grade contract and traditional grading methods to changes in knowledge and attitude during a venereal disease instructional unit*. H.S.D., 1973. 145 p. (J. Keogh Rash)

Subproblems were to compare venereal disease knowledge gain during the unit, changes in attitude toward classroom and learning activities, and venereal disease knowledge retained 5 wk. following the unit of students graded by the contract method or by the traditional method. The study, conducted at the Madison (Ind.) Consolidated Jr. H.S., occurred during a 9-day venereal disease unit and involved four 9th grade health classes. The tests, *A venereal disease knowledge inventory*, by Gelolo McHugh and *Pictographic self rating scale* (attitude test) by Einar Ryden, were chosen. Both groups acquired a significant amount of venereal disease knowledge during the unit. Neither group acquired a significantly greater amount of knowledge than the other group. Attitudes of both student groups did not change significantly. Neither group ended the project with a higher attitude score than the other group. Both groups retained, for a 5-wk. period, the knowledge level possessed at the end of the unit. Neither group retained a significantly greater amount of knowledge than the other group.

Purdue University, West Lafayette, Indiana

(C. J. Widule)

233. CASKEY, Sheila Rae. *Influence of group and individual success-failure experiences in a throwing task on movement concept and level of aspiration of children in grades three, four and five*. Ph.D. Thesis, 1973. 173 p. (M. A. Clifton)

- 234 FEENEY, Susan Barbara. *Interpretation of Doppler data for kinematic analysis of motion in three dimensions: Preliminary investigations*. M.S. Thesis, 1973. 107 p. (C. J. Widule)

The Doppler effect is a physical phenomenon which causes the frequency of a sound wave of constant frequency to seem to change in proportion to the velocity and direction the source of the sound moves with respect to a stationary receiver. This phenomenon has been used with considerable accuracy to describe slow movements occurring in very limited space relative to three dimensions. Before the effectiveness and practicality of interpretation of Doppler data for kinematic analysis of large, rapid movements could be evaluated, however, (1) all of the instrumentation had to be built and tested and much of it redesigned, (2) the feasibility of using an open field instead of an anechoic chamber had to be measured, (3) the size limitations of the testing area had to be established in terms of existing instrumentation, and (4) a digital computer program had to be written to process the data. The aforementioned tests and tasks were the subject of this research and insofar as could be established in a pretest situation, the conditions cited as necessary prerequisites for further study were met.

235. POHLMANN, Judith Lyne Gilbert. *The effect of individual and simultaneous cue presentation on the learning of a novel gross motor skill*. Ph.D. thesis, 1973. 177 p. (H. M. Smith)

Fifth grade girls were given prepractice training on feedback cues inherent in a novel gross motor task. The cues in question were auditory, proprioceptive, visual and auditory-visual combined. Effects of cue training were analyzed by a series of planned comparisons among important periods in the learning process. The Newinan-Keuls Sequential Range Test and a series of curve-fitting procedures were also utilized. The visual and control groups had a faster rate of learning, whereas the proprioceptive group showed

a greater rate of relearning as well as the highest level of performance attained. The auditory and auditory-visual groups maintained a very gradual rate of increase. Not until relearning did these two groups differ significantly from the first half of original learning.

- 236 SCHONEY, Madeline Hill. *The effects of varying color and direction of projection on the catching performance of 8.5 to 11.5 year old boys and girls*. M.S. thesis, 1973. 50 p. (H. M. Smith)
Boys and girls ($N=48$) participated in the study. It was concluded that object direction, sex, and skill level of S(s) had more influence on the ability to catch balls than did color preference on object color.

Drake University, Des Moines, Iowa

(N. Tremble)

- 237 BLOOMCAMP, Patricia A. *Maintenance of swimming pools in the secondary schools of Iowa*. M.S. in Physical Education, 1973. 81 p. (N. Tremble)
238 DUGGAN, Earl W. *Utilization of the trampoline in selected secondary schools of Iowa*. M.S. in Physical Education, 1971. 76 p. (N. Tremble)
239 FERGUSON, Harlan C. *Personality traits of track and field participants*. M.S. in Physical Education, 1972. 61 p. (N. Tremble)
240 HEGGER, Jean C. *Leisure-time sports for girls in the high schools of Polk County, Iowa*. M.S. in Physical Education, 1972. 50 p. (N. Tremble)

University of Iowa, Iowa City, Iowa

(J. F. McCabe)

- 241 BOWEN, James C. *Faculty attitudes toward required physical education programs in the California State University and colleges*. Ph.D. in Physical Education, 1973. 159 p. (D. R. Casady and D. K. Leslie)

The Ss were 643 faculty who returned properly completed questionnaires containing the Carmody Attitude Inventory and a 30 item Personal Data Inventory. An χ^2 test of independence, with resultant contingency coefficient (C), was employed for all statistical tests. A significant majority (57%) were favorable to a Program of Required Physical Education (PRPE). Faculty from 16 campuses were slightly favorable, whereas, 3 were neutral. Faculty from 12 teaching-research fields were slightly favorable, whereas, faculty from 4 other fields were neutral. There were no significant differences between faculty attitude scores by geographic campus location, PRPE status (elective or required), and fulltime enrollment. Twelve personal factors were significantly associated with attitude: general attitude toward PE related activities; undergraduate participation in a PRPE; assessment of the competency of the typical HS PE teacher; present participation in individual/dual sports; time spent personally viewing sports events; years of HS athletics participation; time spent viewing sports on television; hours available weekly for participation in physical activities; years of college athletics participation; time spent listening to radio sports events; and number of college letters won.

- 242 BROWN, Sheila A. *Personality characteristics of selected groups of women educators*. M.A. in Physical Education, 1973. 116 p. (N. P. Burke)

Cattell's 16 PF Inventory and a personal background questionnaire were obtained from 236 women physical educators and 180 women educators from other departments within the central district. Conclusions: (1) Certain personality factors distinguished between women physical educators and women educators from other departments in selected colleges and universities. (2) Certain factors on the personality profiles distinguished the various groups of women from the general female population. (3) Women coaches relative to noncoaches were significantly different on several of the 16 personality traits. (4) Certain background variables distinguished between the physical educators and educators, and between the women coaches and noncoaches.

- 243 COLE, Sharon McManigle. *The effects of weight training on track and field performance of junior high girls*. M.A. in Physical Education, 1973. 47 p. (M. G. Fox)

Junior high girls, grades 7 through 9, were divided into 2 groups of 144 each. One group used weight exercises in addition to running and jumping practice, while the other group did the running and jumping only. Each group was pretested in the 100 yd. dash and the running long jump. Two dash trials and 3 long jump trials were recorded. Upon completion of training, each group was posttested in the long

82 UNIVERSITY OF IOWA

jump and the 100-yd. dash. The best trial in each test for each subject was used for statistical analysis. Both the Weight Group and the non weight group improved significantly from pretest to final test on the dash and the long jump. However, the weight group improved significantly over the non-weight group on the long jump and the 100-yd. dash, indicating that weight-training used with the running and jumping practice was more effective than the running and jumping alone.

244. COLE, Wendy Foote. *Socioeconomic characteristics of top-women gymnasts*. M.A. in Physical Education, 1973. 70 p. (Y. L. Slatton)

A questionnaire concerning socioeconomic backgrounds was sent to 46 participants who were entered in the Women's Semi-Olympic Gymnastics Trials. Also included in the study was a comparison of the 7 Olympic competitors with the other participants. The Olympic competitors differed from other gymnasts in the following areas: The coach was the most influential person in encouraging their participation. Two Olympic competitors did not have family approval. Conclusions: Women gymnasts came from widely divergent geographical areas and were not receiving athletic scholarships. They were primarily products of private clubs and the majority were coached by men.

245. ELLIS, Margaret. *Film series: Movement education for young children*. Ph.D. in Physical Education, 1973. 130 p. (M. G. Scott)

Two Super 8-mm. sound films in a series "Movement education for young children" were developed and produced to show kindergarten children engaged in selected aspects of the movement education program. The films were designed to be used in preservice and inservice education of teachers. The first film "Moving and learning" describes the activities undertaken in the 3 learning environments; the classroom, the gymnasium, and the outdoors. The second film "Guiding movement experiences: Gymnastics" shows the structure of the gymnastics lesson and discusses ways of presenting material to the children. An evaluation by 109 workshop participants indicated that the films were an effective teaching device.

246. GROSSWILER, JoAnn. *The effect of attitude toward warm-ups on the speed of elementary school children*. M.A. in Physical Education, 1973. 37 p. (M. G. Scott)

Fifth and 6th grade students ($N = 196$) were given an attitude survey concerning the value of warmup exercises. On the basis of these scores each student alternated running a 50-yd. indoor circuit without a warmup period and after a 5-min. warmup period. They performed under 1 condition the first day and the alternate condition the second day. Results indicated that while the second run was significantly better than the first, neither attitude nor condition of run was a significant factor.

247. HORGAN, James S. *The effect of motivation on cerebral-palsied children in the performance of a reaction time and movement time task*. M.A. in Physical Education, 1973. 73 p. (G. M. Asprey)

Boys ($N = 7$) and girls ($N = 7$) from the University of Iowa Hospital School were administered 15 trials of an RT and MT task once weekly for 7 wk. The 1st and 7th wk. were used for initial and final testing sessions, respectively, and the 2nd through 6th wk. were used for the 5 training sessions. The exp. group received motivational (verbal praise) treatment and the control group received no motivational treatment. The M of the 15 trials for each of the 2 testing sessions and for each of the 5 training sessions were used as the session scores for RT and MT. Changes during the training session and changes from initial to final sessions were analyzed within and between groups through use of the t . The results indicated that both groups demonstrated significant improvement in RT performance. Significant improvement in MT performance was obtained only within the exp. group. The exp. group performed significantly better on RT and MT than did the control group. Within the limitations of this study, motivational treatment (verbal praise) apparently yields RT and MT performance significantly superior to that of no motivation (no praise).

248. McCUNE, Judy K. *A comparison of the effects of varied smoking patterns upon the performance of selected tests of response time, manual dexterity and hand steadiness*. Ph.D. in Physical Education, 1973. 119 p. (J. L. Seahill)

University of Iowa women ($N = 75$) enrolled in Movement Principles classes during the second semester of 1972-73 were tested. These 50 smokers and 25 nonsmokers were compared on response time, manual dexterity, and hand steadiness tests. Exp. group I smoked immediately preceding testing; Exp. group II abstained from smoking 2 hr. preceding testing. Conclusions: There were no significant differences in the response time or manual dexterity performance of the smokers or nonsmokers. The nonsmokers'

performance on the Whipple Hand Steadiness test was significantly better than both Exp. Groups. Exp. group I performed significantly poorer than either the Control group or Exp. group II.

249. MILLER, Mary J. *The effect of cohesiveness on team performance in a game situation*. M.A. in Physical Education, 1973. 43 p. (Y. L. Slatton)

Subjects were volunteers from beginning bowling classes, divided into 2 groups on the basis of averages established in class. A personality test used as a placebo and team placement with friends was used to manipulate high and low cohesive groups. The team performance was tested in a modified game of Scotch Doubles in bowling. There was no significant difference in the performance of the 2 groups.

250. MUDD, Linda L. *Comparison of tests of static leg strength and leg power*. M.A. in Physical Education, 1973. 83 p. (M. G. Scott)

Females ($N=37$) were administered 11 tests of static leg strength and leg power. The leg strength tests were the standard dynamometer leg lift, the dynamometer modification, and cable tensiometer tests of ankle plantar flexion, hip extension, shoulder flexion, and knee extension. The leg power tests were the standing long jump and a modification, the vertical jump and a modification, and a vaulting test. The findings showed that static leg strength was only slightly related to leg power. The sum of cable tensiometer tests was not more predictive of leg power than multiple correlations of these tests with various power tests as the criterion. The vaulting test was only slightly related to the tests of power and strength and was not more predictive of strength than the other power tests. The modifications of the long jump and the vertical jump were not more predictive of leg strength than the original tests.

251. RITH, Donald G. *A study of relationships among athletic experience risk taking and interpersonal behavior of public recreation administrators*. Ph.D. in Physical Education, 1973. 145 p. (D. R. Casady)

Data were obtained through 3 questionnaires mailed to 1,047 administrators, with 545 making proper returns. One sought the amount of athletic experience and other personal and professional data; the 2nd, interpersonal-relations orientation; and the 3rd, risk-taking propensity. A significant but low relationship was revealed between the administrators' amount of athletic experience and their FIRO-B affection-expressed ($r=.13$) and affection-wanted scores ($r=.10$). A significant but low positive relationship was obtained between amount of athletic experience of team sports participants and their risk-taking scores ($r=.18$); between individual sports participants and risk-taking scores, a relatively high negative relationship ($r=.50$) was obtained. No significant differences were found between interpersonal-relations scores of administrators who had only individual sports, team sports, or no formal athletic experiences; or the means of administrators' FIRO-B control-expressed, affection-expressed, and inclusion-expressed scores. Statistically significant findings were indicated on 2 of the 6 dimensions (control-expressed, $r=.13$), and affection-wanted, $r=.09$) in which relationships between administrators' interpersonal relations scores and risk-taking were sought. No statistically significant findings were revealed between risk-taking scores of administrators whose athletic experiences had been either in individual or team sports, or who had been nonparticipants in formal athletics.

252. STRAND, Kenneth H. *The effect of non-normality and sample sizes on selected k-sample tests: An empirical study*. Ph.D. in Physical Education, 1973. 248 p. (D. R. Casady and H. D. Hoover)

Data were obtained by a Monte Carlo method of generating by computer pseudorandom samples utilizing programs developed by the writer and others. Different combinations were studied in 20 runs: population distribution forms; number of groups; and size of group. Pseudorandom samples of sizes n_1, n_2, \dots, n_k from k -selected populations were generated, and each selected statistic was computed. For each of the 3 selected levels of significance, each obtained statistic was compared with its corresponding critical value. The following conclusions appear justified. No one statistical test has global superiority in its type I error control and power. The F test generally, but not always, provides the most acceptable type I error control and is the most powerful test. The H test, generally the least powerful, is comparable or superior to the power of the other tests for combinations of unequal sample sizes and large differences between the means. The W test generally provides the least acceptable type I error control, but for combinations of leptokurtic distribution form and large total sample size is equal in power to, or more powerful than, the other tests. When the populations do not have identical distribution forms, the type I control of all the tests generally, and especially for unequal sample sizes, is not acceptable when the skewnesses are in opposite directions.

**84 UNIVERSITY OF IOWA, KANSAS STATE UNIVERSITY, and
WICHITA STATE UNIVERSITY**

253. TOLLAKSON, John A. *Selected factors in programs of high school physical education and attitudes of high school senior boys*. Ph.D. in Physical Education, 1973. 121 p. (L. E. Alley and D. K. Leslie)

Data concerning selected factors in boys' PE programs in 87 randomly selected Iowa SHSs were obtained from supervisors' responses to a questionnaire. Data concerning attitudes of from 3 to 6 HS senior boys toward PE were obtained from their responses to the Wear Attitude Scale. Compared to those described by Holyoak in 1966, programs in Iowa SHSs changed, but not radically. Tollakson found an increase in the usage of curriculum guides, provision for progression, and assignment of student-athletes to PE classes. Provision of written materials had decreased, but the number of schools in which students were responsible for information therein for testing and/or evaluation had increased. Use of instructional media was limited, but types of media used had increased. A major difference was the increase in number of total, lifetime, and coeducational activities offered. There was increased emphasis upon skills and written tests. PE credit was required for graduation in more schools, and fewer schools gave credit for participation in nonphysical education activities. In an increased number of schools athletes were required to attend PE classes during competition seasons. No conclusive evidence was found that attitudes of senior boys were associated with selected factors in the programs.

Kansas State University, Manhattan, Kansas

(C. B. Corbin)

254. BRANDENBURG, Linda S. *A study of female coaching qualifications in the State of Kansas for 14, 24 and 34 high schools*. M.S. in Physical Education, 1973. 39 p. (W. Zuti)
255. EUSTICE, David E. *Parental attitudes of sons with differing levels of physical ability*. M.S. in Physical Education, 1973. 73 p. (J. Merriman)
256. FOX, Cynthia A. *The effects of team membership on social acceptance of high school girls*. M.S. in Physical Education, 1973. 61 p. (C. B. Corbin)
257. GANN, Roy A. *Comparison of trained and untrained women in the performance of the vertical jump and three measured characteristics of an isokinetic power thrust machine*. M.S. in Physical Education, 1973. 44 p. (A. L. Noble)
258. HOLDER, Cheryl A. *Attitudes toward physical activity of freshmen men and women*. M.S. in Physical Education, 1973. 71 p. (C. B. Corbin)
259. HUNTZINGER, Kathryn R. *Control differences between two scissor kick styles*. M.S. in Physical Education, 1973. 54 p. (J. Merriman)
260. KRIESBERG, Barry S. *A study of the type of athletic participation and its relationship to attitudes expressed towards athletic competition*. M.S. in Physical Education, 1973. 48 p. (J. Merriman)
261. LINENBERGER, Larry E. *A study of the professional coaching courses taken by the male coaches in the A and AA high schools in Kansas*. M.S. in Physical Education, 1973. 42 p. (R. Wauthier)
262. MORGAN, Mary L. *Evaluation of the heart rate response of women in an adult fitness program*. M.S. in Physical Education, 1973. 56 p. (W. Zuti)
263. MOSELY, Kenneth D. *A comparative analysis between the premotor reaction time of women athletes and women nonathletes*. M.S. in Physical Education, 1973. 54 p. (J. Merriman)
264. STUCKY, John R. *Changes in body composition of college football players during four varying training programs*. M.S. in Physical Education, 1973. 67 p. (T. M. Evans)

Wichita State University, Wichita, Kansas

(R. E. Laptad)

265. MACK, Ronald C. *A study of physical education knowledge and understanding as exhibited by Kansas college physical education majors*. M.Ed. in Physical Education, 1973. 50 p. (R. E. Laptad)

266. NIXON, Nadine A. *A test for the volleyball bump pass*. M.A. in Physical Education, 1972. 43 p. (R. E. Lupton)
267. RUSSELL, Todd L. *A study of physical education knowledge and understanding of sixth grade students*. M.A. in Physical Education, 1972. 52 p. (R. E. Lupton)

University of Kentucky, Lexington, Kentucky

(G. A. Stull)

268. ROWE, Deryl G. *Effects of different intensities of exercise on intraocular pressure and selected relevant physiological variables*. M.S. in Physical Education, 1973. 102 p. (P. Terasimna)
- Males ($N = 7$) ages 23-45, were tested on a maximal and 2 submaximal performance tests. Intraocular pressure (IP), HR, venous blood pH, and venous lactate concentration were measured at rest, at the middle of the submaximal test, at the end of exercise, and at 5 and 10 min. recovery. HR and IP were also measured after each minute of the first 5 min. of recovery. Two-factor (time \times exercise level) ANOVA with repeated measures across both factors and trend analyses were used in the data analysis. The results of the analysis indicated that IP decreased ($p < .01$) during exercise and the first few minutes of recovery. Intensity of exercise was not related, however, to the amount of decrease in IP. The decrease in IP was associated with a reduction ($p < .01$) in blood pH and an increase in HR and blood lactate.
269. YOUNG, Glenn R. *Effects of SCUBA Training on orientation while underwater*. M.S. in Physical Education, 1973. 42 p. (G. A. Stull)
- Ss, 18 exp. and 18 control, were pre- and posttested on a submerged equilateral triangle with 2 of its sides roped off. The task consisted of the Ss, with all visual cues eliminated, being led along 2 of the roped sides of the triangle and then negotiating his way back along the open side to the point of origin. The error score represented the distance between the actual and perceived points of origin. Between pre- and posttesting, exp. Ss participated in 30 hr. of SCUBA training and control Ss engaged in 30 hr. of swimming instruction. A two-factor ANOVA (tests \times groups) with repeated measures across tests indicated that both groups improved significantly ($p < .05$) from pre- to posttest, but there was no significant main effects for groups. The lack of a significant F ratio for interaction suggested that the difference in performance by the 2 groups was somewhat consistent across the 2 test levels.

Louisiana State University, Baton Rouge, Louisiana

(J. K. Nelson)

270. BRADFORD, Dmah C. *The effect of an audience on two personality types performing a novel motor task*. M.S. in Physical Education, 1973. 47 p. (H. E. Fant)
- Two groups of 8th grade girls were formed on the basis of scores on the California Test of Personality T , representing relatively good and poor adjustment. Each group ($N = 60$) was randomly divided into subgroups. One subgroup performed a novel task of bouncing a tennis ball on alternate sides of a paddle racket in the presence of only the experimenter, the other subgroup performed in front of a small group ($N = 7-10$) of classmates. The groups' performances were compared by ANOVA. No significant differences were found with regard to audience effects on personality types.
271. DAVIS, Lonnie J. *Effects of repeated blows on temperature, pain tolerance, and volume of the hand*. Ph.D. in Physical Education, 1973. 114 p. (E. A. Drury)
- College men ($N = 60$) were tested every 2 wk. for a period of 12 wk. on hand temperature by a radiometer, hand volume, and a pressure pain tolerance test. Three groups were formed: experienced handball players, beginning players, and Ss who had never played served as the control group. At each testing session the 2 exp. groups were tested both before and after stress received by playing handball. Split-plot ANOVA resulted in the following conclusions: Pain tolerance and hand volume increased as a result of regular exposure to repeated stress. The conditioning effect curves were negatively accelerated. The dominant hand showed greater responses than the nondominant. No significant conditioning effects were found for temperature. Swelling from repeated blows apparently acts as a cushioning effect for additional blows.

86 LOUISIANA STATE UNIVERSITY and UNIVERSITY OF MARYLAND

277. GEDNEY, Roger H. *Effects of general cardiovascular training on localized muscle strength and endurance*. Ed.D. in Physical Education, 1973. 81 p. (J. K. Nelson)

Four groups of college men ($N=60$) were tested before and after a 6-wk. training program on a cable tensiometer static strength test, a barbell isotonic strength test and a barbell muscular endurance test loaded with 43% of maximal strength. Group I was combined cardiovascular and strength training; group II was cardiovascular only; group III, strength only and group IV was control. Cardiovascular training was with a bicycle ergometer and strength training involved elbow flexion-extension with the Kinometric Contractor, a combination isometric-isotonic device. ANCOVA revealed significant differences in both static and isotonic strength in favor of the strength training Ss. The cardiovascular training groups did gain significantly in muscular endurance, but no significant differences were found between the cardiovascular and strength training groups in muscular endurance gains.

273. HIGHTOWER, James A. *Effects of participation in intercollegiate athletics upon personality dynamics*. M.S. in Physical Education, 1973. 69 p. (J. K. Nelson)

Varsity and junior varsity baseball players ($N=30$) were administered the Athletic Motivation Inventory before and after the baseball season. Varsity players were classified as starters or substitutes. ANOVA was used to test for initial differences, and ANCOVA was used for the posttest comparisons. Detailed performance and anecdotal records were kept on each player. Graphic comparisons of group profiles and analyses of selected individual profiles were made. It was concluded that participation in collegiate athletics can result in positive or negative effects on personality. Personality traits do not appear to be differentiators as to starters or substitutes; however, serving in the role of substitute has a detrimental effect over a season on personality traits. Lower stress competition such as junior varsity is less apt to produce negative changes in personality than varsity competition.

274. MARTIN, Patsy. *The effect of an instructional program of physical education on selected locomotor skills of kindergarten children*. M.S. in Physical Education, 1973. 72 p. (H. E. Fant and J. K. Nelson)

A standing broad jump, a balance beam test, a 50-ft. hop, and a 35-yd. dash were administered to 5-yr.-old girls and boys ($N=54$) before and after a 6-wk. exp. period. One group was given a planned instructional program of PE 20 min./day, 5 day/wk. The control group participated in supervised free play. The exp. group gained significantly in all 4 activities; the control group gained significantly in the 35-yd. dash and broad jump. The only significant difference between the groups was in the balance beam test in favor of the exp. group. It was concluded that a planned instructional program of PE is more effective in locomotor activities that require finer gross motor adjustments than mainly power activities.

275. PURVIS, Gracie J. *The effect of three levels of duration and intensity of exercise upon the peripheral vision and depth perception of women*. Ph.D. in Physical Education, 1973. 63 p. (J. K. Nelson)

College women ($N=180$) were assigned to 9 work-time groups and tested before and after exercise on a bicycle ergometer on peripheral vision and depth perception. The workloads were classified as light (125-130 HR), moderate (155-160 HR), and heavy (175-180HR). The durations of work were 5, 10, and 15 min. Peripheral vision of both eyes was measured by a perimeter and depth perception was measured by the Howard-Dolman apparatus. Correlated t tests and ANCOVA revealed that exercise improves peripheral vision. Variations in duration and intensity of exercise from a very mild, short exercise to a strenuous, prolonged work-bout had no differential effects on the amount of improvement. No changes in depth perception were found. The r between peripheral vision and depth perception changed from .01 before exercise to -.53 immediately after exercise.

University of Maryland, College Park, Maryland

(D. H. Clarke)

276. AREY, Virginia S. *A study of the physical attitudes, interests, and performances of tenth grade girls*. M.A. in Physical Education, 1969. 100 p. (A. G. Ingram)

Tenth grade girls, ($N=130$) were given a modification of the New York State Board of Education Interest Inventory. It was found that swimming, basketball, softball, volleyball, horseback riding, tennis, archery, water skiing, and badminton were the most interesting sports to the girls. They were very concerned about skill development, playing well, and being a good team member. They also possessed an interest in a wide variety of individual sports.

277. **BERGMANN, Brian W.** *A cinematographical and kinematic analysis of the body center of gravity during the kip on the high horizontal bar.* M.A. in Physical Education, 1973. 83 p. (D. L. Kelley)

Uniaxial cinematography was used to record the performances of 5 Ss, similar in body build, each demonstrating 5 trials. The segmental method was used to determine body center of gravity (CG). It was concluded that: (1) the optimum back swing should be between 70° and 85°, (2) the hips should be flexed prior to the end of the forward swing of the shoulder or hip joints and the CG, (3) the hips should be extended slightly before the shoulder passes beneath the bar, (4) a high minimum velocity should be maintained during the hip flexion phase, (5) the ascension arc from the initiation of hip extension to the point where the CG is level with the bar is curvilinear and its length is dependent upon the velocity needed to bring the CG to that level, (6) the hip extension and ascension phases cause the greatest displacement of the high bar, which is indicative of the forces acting upon it.

278. **BROWN, Richard L.** *The effect of dietary protein supplement on lean body mass, strength, and cardiovascular capacity.* M.A. in Physical Education, 1973. 106 p. (D. H. Clarke)

Midshipmen at the U.S. Naval Academy ($N = 131$) were randomly divided into 3 groups: control, placebo, and protein supplement. The supplement was an additional 0.5 g/kg of body wt. All groups participated in the same exercise program, had the same diet, and had the same daily routine. Measurements were made on all Ss prior to, and at the completion of a 12-wk. training program. Three of 6 girth measurements increased significantly in all groups. The protein supplement group gained significantly in body wt. during the first 6 wk. but at the end of 12 wk. no group showed significant improvement. The control and supplement groups significantly increased their specific gravity, but no change was noted in the placebo group. All groups improved significantly in the 12-min. run, and all groups improved significantly in the 11 muscular strength and endurance tests. There were no significant differences between groups in any of these tests. It was concluded that the addition of a protein supplement to an already balanced and abundant diet has no important effect on body size, cardiovascular endurance, muscular strength and endurance, and lean body mass.

279. **CARLO, John W.** *Effects of compensatory hypertrophy and various detraining periods on substrate utilization in the rat plantaris muscle.* M.A. in Physical Education, 1973. 64 p. (D. H. Clarke)

Experiments were conducted to explore changes in oxidative capacity, noncollagen protein content, and net weight during varying periods of compensatory hypertrophy followed by periods of immobilization. The results indicated an increase in wet weight, no change in oxidative capacity, and a decreased concentration of noncollagen protein. Immobilization of hypertrophic muscles did not cause significant wasting over 21 days of disuse. The reduction of oxidative capacity followed a similar pattern to that seen in immobilized normal muscles. Furthermore, noncollagen protein was markedly reduced. The technique of ablation produces hypertrophy but does not affect oxidative capacity. The biochemical effects of atrophy are the same as those seen in normal muscle. Compensatory hypertrophy produces effects which may be unique to this surgical procedure.

280. **COMPTON, Raymond L.** *Motivational effects of selected variables on fatigue parameters of the forearm flexor muscles.* M.A. in Physical Education, 1973. 79 p. (D. H. Clarke)

Volunteer college Ss ($N = 80$) performed a 5-min. rhythmic handgrip exercise requiring 30 contractions/min to determine the motivational effects of variables: presence of an attractive girl, monetary reward, verbal encouragement, and control. The presence of an attractive girl resulted in decreased performance in final strength and total work, when compared with a monetary reward. No significant differences could be found in initial strength or fatigable work among all motivational conditions. The fatigue rate constant for verbal encouragement was 36% slower than the rate constant for the presence of an attractive girl. Verbal encouragement appeared to be the most effective means of reducing fatigue in repetitive handgrip exercise.

281. **DAVIS, Robert C.** *The effect of perceptually oriented physical education on perceptual motor ability and academic ability of kindergarten and first-grade children.* Ph.D. in Physical Education, 1973. 121 p. (J. H. Humphrey)

Four groups of kindergarten children varied the number of periods of PPE/wk. they met — 0, 1, 2, and 3 times/wk. The 4 groups of 1st grade children varied the amount of time/period for the PPE program — 0, 20, 30, and 40 min/period twice/wk. After 15 wk., each of the 3 1st grade PPE groups was found to be significantly better than the control group in perceptual-motor ability. A significant linear trend in the data was also found. No significant differences were found among the 1st grade groups in academic ability. There were also no significant differences among the kindergarten groups in either perceptual-motor ability or academic ability.

- 282 HASKO, Eillian. *The relationship of motor creativity and creative thinking ability according to grade level and sex in elementary school children*. M.A. in Physical Education, 1972. 136 p. (A. G. Ingram)

Elementary school age children (N = 60) were tested for motor creativity and creative thinking ability. An equal number of males and females from grade levels 2, 3, and 6 served as Ss. The test for motor creativity included 3 tasks. The Torrance Tests of Creative Thinking, Figural Test, Form A, was administered to the Ss. The results revealed no relationship between motor creativity and creative thinking ability. The average mean T scores showed that the motor creative ability of the male Ss increased from the 2nd to the 6th grades, while the female Ss' scores dropped from the 2nd to the 4th grades and increased from the 4th to the 6th grades. The decrease in creativity in the 4th grade students, found by others, was not evident in this investigation.

- 283 KINNEAR, George R. *The effect of hypoxic training on serum lactate dehydrogenase and its isoenzymes in male Wistar rats*. Ph.D. in Physical Education, 1973. 85 p. (D. H. Clarke)

The effects of a 7 wk. period of hypoxic swimming upon total amounts of the enzyme lactate dehydrogenase, and the distribution of lactate dehydrogenase in the normal resting serum of 95 male Wistar rats was studied. Animals were randomly assigned to control, normoxic, or hypoxic groups. The control Ss received no treatment, but were hand-held in water for a time comparable to those in the other 2 groups. Animals in the normoxic group swam, while weighted with $\frac{3}{4}$ of their total body weight an initial period of three 1-min. bouts. Periodically, the swimming times were increased until all animals in the group were swimming 3-105 sec. bouts. Animals in the hypoxic group swam in a fashion similar to those in the normoxic group, except they swam while breathing a mixture containing 5.89% nitrogen. The animals in the normoxic group had significantly elevated levels of lactate dehydrogenase. No differences among the groups were present in lactate dehydrogenase isoenzyme content. Analysis of total body weight indicated a retarded growth rate in those animals that trained under hypoxic conditions.

- 284 MCCARTHY, Eugene F. *A comparison of the personality characteristics of highly successful, moderately successful, and unsuccessful high school basketball coaches as measured by the Cattell Sixteen Personality Factor Questionnaire*. M.A. in Physical Education, 1973. (D. H. Steel)

Varsity high school basketball coaches (N = 52), were administered the Cattell 16 Personality Factor Questionnaire, Form A. Winning percentage was the criterion chosen to measure success. The coaches were grouped into the 3 categories according to their cumulative winning percentage in their last 3 yr. of coaching. To be highly successful, the coaches needed a winning percentage of .60 or greater, for moderately successful .41 to .59, and for unsuccessful .40 or less. The results indicated that there are no significant differences between the 3 groups on any of the 20 personality factors measured.

- 285 MCLIN, William M. *A study of the effectiveness of specific versus general education messages in the cancer crusade*. M.A. in Health Education, 1973. 51 p. (H. I. Jones)

American Cancer Society volunteers administered a questionnaire to measure the health knowledge and habits of the residents of an apartment community. One-third of the respondents were then exposed to a specific message about a particular cancer site area, one-third were given a general message about health exams for cancer, and the remaining were not exposed to any ACS health message. After a 6-mo. interval the original questionnaire was readministered and a statistical analysis was made on the comparison of the before and after scores to determine whether changes in the knowledge and habits of the respondents had occurred.

- 286 NEEDLE, Richard Howard. *The relationship between sexual behavior and ways of handling contraception among college students*. Ph.D. in Health Education, 1973. 200 p. (W. R. Johnson)

Survey of 1,642 University of Maryland male and female students at all grade levels. Data concerning the 551 females and 594 males who were sexually active were analyzed as to: (1) Frequency distributions in demographic, sexual contraceptive attitudinal, and behavioral variables; (2) Bivariate joint frequency distributions with and without controls (tested for significance with χ^2). Results showed that the majority of both sexes were unreliable contraceptors at first sexual intercourse with the best explanation being that first sexual intercourse was unexpected. Both males and females reported contraceptive inconsistency since coming to college. Number of sexual partners did not affect female contraceptive behavior, though males with 3 or fewer partners were more consistent contraceptors than males with 4 or more partners. Female contraception was higher in college than high school, but in both cases contraceptive consistency increased with level of affection for partner. A majority of males and females used reliable contraception at last sexual intercourse. From this study there is not adequate basis for judging the extent to which variations in contraceptive behavior are to be ascribed directly to variables in sexual socialization.

- 287 NGOH, Godfred S. *A study of attitudes toward selected physical activities, organizational participation, sportsmanship and leisure time preferences of tenth grade boys in Cameroon*. M.A. in Physical Education, 1972. 126 p. (A. G. Ingram)

Boys (N = 200) enrolled in 4 secondary schools in Cameroon completed a questionnaire used to investigate the attitudes of 10th grade boys toward physical activities. The device used to determine the activities, the roles of responsibility, and the traits of sportsmanship preferred was percentage ranking of the responses of the Ss. Using the chi-square test, it was determined that there was association between age and activity interest. It was found that cultural heritage, scientific knowledge, and the aspirations of the students should be the guiding factors in developing the physical education program in Cameroon. The boys manifested great support for track and field, traditional dances, traditional sports, team sports, new sports, camping, and outdoor recreation. The results also indicated that the boys surveyed wanted to participate in organizational and socializational experiences that sports offer.

- 288 PETERSON, Franklin J. *Effects of an anabolic steroid, amphetamine, and protein supplementation upon weight gain and endurance performance of male Wistar rats*. Ph.D. in Physical Education, 1973. 122 p. (D. H. Clarke)

Male Wistar rats (N = 62) were randomly assigned to either 1 of 4 exp. groups or to the control groups. Ss in the exp. groups were exposed to both an interval training program and selection combinations of amphetamines, anabolic steroids, and protein supplementations. No significant differences occurred in weight gain or endurance between the exp. groups. The control group had significantly greater weight gains and significantly lower endurance than did the exp. groups.

- 289 SMITH, Karen L. *The role of games, sport, and dance in Iroquois life*. M.A. in Physical Education, 1972. 126 p. (M. H. Eyster)

The Iroquois cultivated by sport and dance the qualities of strength, speed, agility, endurance, and rhythm. Their sport included lacrosse, javelin throw, snow snake, snow boat, foot races, archery, sham fights, and funeral games. Sacred dances such as the Great Feather Dance, Thanksgiving Dance, War Dance, and Calumet Dance not only served recreational ends but were integral aspects of religion and ceremony. Numerous social dances were performed for diversion and for fun. Games of chance fell into 2 categories: dice games such as deer buttons and the bowl game, and guessing games including the hand game, the game of straws, and bell-and-shoe. Games, sport, and dance found a specific place in the many Iroquois ceremonies to honor the Creator and his helpers. These activities contributed to culture through their social values and were useful in training for war, acquiring skill and grace, contributing to recreational life, entertaining and venerating the gods. They served as a means for promoting tribal loyalty and solidarity, educating the young, and providing an outlet for healthy, competitive urges. There was a close relationship of social organization, religion, government, recreation, and education in the tribes which were integral parts of the society as a practical, realistic means of achieving group solidarity. Participation in games, sport, and dance was an inextricable, necessary part of Iroquois life.

- 290 SPINA, Gloria A. *Fatigue parameters of the forearm flexor muscles in women of different strength*. M.A. in Physical Education, 1973. 54 p. (D. H. Clarke)

Three different levels of isometric strength (high, middle, and low) of female Ss (N = 60) engaged in a fatiguing handgrip exercise were investigated for their respective fatigue curves and fatigue parameters. The exercise was of 5-min. duration and required 1 maximal contraction every 2 sec. (30/min). Initial strength, final strength, total work, and fatigable work were extracted, and the Ss were placed into 3 equal groups on the basis of initial strength. All groups differed significantly on initial strength ($F = 54.50$). Final strength ($F = 12.39$) and total work ($F = 32.05$) were significantly different for the high and low groups and the high and middle groups, but not significantly different for the middle and low groups. Fatigable work ($F = 6.82$) was only significantly different for the high and low groups. Thus, high levels of strength cause the same rate of fatigue as middle and low levels of strength. The absolute endurance of Ss of high strength is greater than Ss of low strength, but the relative endurance is independent of high and low levels of initial strength.

Boston University, Boston, Massachusetts

(R. Sine)

- 291 BAZZANO, Carmelo. *The contributions of the Italian Renaissance to physical education*. Ed.D. in Physical Education, 1973. 147 p. (A. Miller)

What did the Renaissance man expect to gain from physical activity? Did Renaissance educators feel that the benefits of physical exercise were limited to the body or did they feel that the total individual

90 BOSTON UNIVERSITY and SPRINGFIELD COLLEGE

would be affected? Physical education became an integral part of education limited to the small number of individuals who enjoyed power or wealth. The contributions of physical education embraced the total individual and were not limited to the physical. Harmony was the guiding principle of physical education, especially in the cultivation of the physical, mental, and spiritual dimensions of man. The Italian Renaissance concept of physical education had deep roots in the Greco-Roman era. This rediscovery spread throughout Europe, to England, and to America. That physical education should be an integral part of the total educational program.

292. SELLERS, William. *The energy cost of zero grade running related to exercise prescription for body weight control*. Ed.D. in Physical Education, 1973. 100 p. (A. Miller)

Forty Ss, 15-18 yr. old, 53.5 kg. to 94.5 kg. body weights were run to determine relationship of gross and net energy expenditure with 9, 10, 11, and 12 km/hr velocities on motor driven treadmill. VO_2 per unit time determined using Douglas bag technique and expressed as VO_2 , VO_2/kg , net VO_2 , and net VO_2/kg . VO_2 per unit distance calculated and expressed as net $\text{VO}_2/\text{kg.km}$, net Kcal/kg.km, and gross Kcal/kg.km. Gross and net energy cost during horizontal running per unit of distance increases from 9 km/hr to 12 km/hr. Gross and net energy cost running at zero grade was .90 Kcal/kg.km for each S regardless of velocity. Gross energy expenditure was .99 Kcal/kg.km regardless of velocity. Net energy cost to run at 0 grade was 67.7 Kcal/km or 107.5 Kcal/mile for all Ss regardless of body weight. Energy cost per kg at rest is equivalent to running on horizontal for 1 km. is .128 Kcal/s. or .09 Kcal/lb./mile. Gross energy cost of horizontal running for 1 mile was equal to the product of energy cost/lb. to run 1 mile (.09 Kcal/s) and the body weight (lb.) plus the net energy cost to run 1 mile (107.5 Kcal.). Gross energy cost for 150-lb. man for 1 mile equaled 121 Kcal.

293. VORGEAS, Miltades. *Changes in knowledge, attitudes and psychophysiological responses associated with a family life and sex education unit administered to college freshmen*. Ed.D. in Health Education, 1973. 134 p. (C. Willgoose)

Cognitive and affective tests (N = 177) were administered to 3 control and 1 exp. groups. A physiograph recorded the physiological responses to auditory and visual stimuli. Physiological measures were heart rate, respiratory rate, and respiratory rate amplitudes. Groups were exposed to a unit of instruction which included a variety of auditory and visual aids. The unit which used a textbook made more gains in the cognitive and effective domains and they were also less sensitive to visual and auditory sexual activity stimuli. There was a positive relationship between the psychophysiological measures and the presentation of the auditory and visual stimuli. There was no positive relationship among the groups in the perception of the emotional intensity of the psychophysiological responses when measured by an objective checklist scale and the physiological responses on the physiograph.

Springfield College, Springfield, Massachusetts

(W. J. Sullivan)

294. ANTEH, Theodora A. *The feasibility and need of establishing a traditional dance program in the school curriculum in Ghana*. M.S. in Physical Education, 1973. 58 p. (J. Bush)

Data for this study were obtained from questionnaires sent to 150 administrators, teachers, and students in Ghana, Africa. One hundred and thirty-five completed questionnaires were returned. Analysis of the responses was by percentage analysis. It was concluded that there was a major concern about Ghanaian cultural activities; the majority of the respondents supported the idea of a traditional dance program in the school curriculum in Ghana.

295. BOHRER, Joan F. *The effect of changes in anxiety, under precompetitive and noncompetitive situations, on the performance of varsity women swimmers*. M.S. in Physical Education, 1973. 41 p. (B. Jensen)

The Ss (N = 43), women varsity swimmers from 4 colleges, were tested for anxiety twice with IPAT 8-Parallel Form Anxiety Battery. The first testing occurred approximately 30 min. a dual meet. The second, before a regular practice session. Following each testing, the Ss' swimming performance times were recorded. Data were analyzed by t , ANOVA, and χ^2 . It was concluded that anxiety levels did not differ in the noncompetitive and precompetitive situations. No differences were found in the number of swimmers who increased or decreased performance times from the noncompetitive to the precompetitive situation. No differences were found in the number of swimmers who increased or decreased performance times with respect to increases or decreases in anxiety level.

296. **CHAMBERS, Robin Lee.** *Differences in attitudes toward physical education of high school girls from various socioeconomic groups.* M.S. in Physical Education, 1973. 45 p. (B. Jensen)
The Ss (N = 197) were 10th grade female students in Springfield, Mass., who were assigned 1 of 5 socioeconomic levels (high, upper middle, middle, lower middle, low) through the use of the Two Factor Index of Social Position. The Kneer Adapted Inventory was administered to all Ss. ANOVA and Duncan's Multiple Range Test were used to evaluate differences in attitude toward PE among the 5 socioeconomic groups. No differences in attitude among the 5 groups were found.
297. **COPP, David M.** *A comparison of two methods of teaching the skating turn in ice hockey.* M.S. in Physical Education, 1973. 31 p. (J. Parks)
The Ss (N = 100) for this study were 10- and 11-yr.-old boys attending a hockey school. They were randomly assigned in pairs to 1 of 2 groups. One group was taught and practiced the traditional turn (inside skate glide) and the other group was taught and practiced the exp. method of turning (inside skate used to provide power). There were 8 practice sessions of 20 min. each for both groups. Following the initial training, all Ss were tested for skating speed by using an adaptation of Cureton's Illinois Agility Run. This arrangement required the skaters to execute both right and left turns. The *t* test for matched pairs showed that the exp. group was significantly faster ($p < .05$) than the control (traditional) group.
298. **COUTURE, Douglas.** *A comparison of the deep water start and the dock start in teaching water skiing to beginners.* M.S. in Physical Education, 1973. 24 p. (W. Sullivan)
Ss for this study were girls (N = 33) between the ages of 10 and 18. Fifteen girls practiced the method of starting from the dock while 18 girls practiced starting from deep water. A Ss score was the number of trials it took her to maintain a standing position for a period of 30 sec. for 2 consecutive trials. The Mann-Whitney U test showed no significant difference ($p > .05$) between the 2 methods of starting on water skis.
299. **COX, Robert L.** *The fifty year history of the New York State public high school athletic association in historical perspective.* D.P.E., 1973. 267 p. (J. Parks)
The intent of this investigation was to trace, analyze, and interpret the actions and services of the N.Y. State Public HS Athletic Association from its inception in 1922 through 1972. The investigation further involved the identification of the contributions made by the Association to interscholastic athletics and athletes in N.Y. state. The analysis of the data revealed that the Association has: (a) developed a unified organization and positive leadership which has led to the growth, development, and enhancement of the state's interscholastic program, (b) provided financial support which has led to the expansion of services and the growth of its athletic programs, and (c) promoted the health, safety, and welfare of athletes, the acceptance of educational goals and mutually beneficial affiliations with other professional organizations.
300. **CUDDIHEE, Richard W.** *The effects of protein on body weight and muscular strength of beginning weight lifters.* M.S. in Physical Education, 1973. 51 p. (W. Sullivan)
Ss (N = 16) for this study were male HS beginning weightlifters. They were randomly assigned to 1 of 4 exp. groups. All groups practiced bench presses, full squats, and dead lifts, 3 times/wk. for 10 wk. One group took a protein supplement for the entire 10 wk. Another group took a placebo for the 10 wk. A third group took protein supplement for the first 5 wk. and a placebo for the last 5 wk. A fourth group took a placebo for the first 5 wk. and a protein supplement for the last 5 wk. Ss were tested for the maximum weight they could lift on the 3 exercises before, after 5 wk., and after 10 wk. Body weight was also measured. ANOVA showed no consistency of differences among the 4 groups. It was concluded that protein supplements are not beneficial in causing increases in strength and body weight when used in conjunction with a weight training exercise program.
301. **DOWNING, John H.** *The influence of three selected categories of winning percentages on the opinions of college coaches toward teaching.* M.S. in Physical Education, 1973. 108 p. (E. Bilik)
Male college coaches of football, basketball, and baseball were surveyed by questionnaire for their opinions on various topics relating to their roles as teacher-coaches. All coaches responding were categorized as unsuccessful (0%-39% winning), moderately successful (40%-59% winning), and successful (60%-100% winning). χ^2 was used to determine if there were any significant differences of opinion among the 3 categories. The investigation revealed no significant ($p > .05$) differences of opinion related to teaching and coaching effectiveness among the 3 categories with only 3 exceptions.

92 SPRINGFIELD COLLEGE

302. FL. Frank H. *A study to determine the relationship between serving and winning in the game of ping-pong*. M.S. in Physical Education, 1973. 29 p. (J. Parks)

Data for this study were obtained from observations of competition in closed tournaments among advanced players. Subjects ($N=15$) were used in this study, each with a minimum of 8 games played and observed. A χ^2 was used to analyze the data. It was concluded that there is a significant ($p < .05$) and positive relationship between serving and winning in ping pong.

303. HARRIS, Keith N. *Barriers to the delegation of authority practiced by directors of athletics in Canadian universities and colleges*. M.S. in Physical Education, 1973. 153 p. (E. Steltz)

Data for this study were collected by using a combined questionnaire checklist. A jury of 4 former directors of athletics recommended modifications in the form and content of the original checklist; the final form listed 81 administrative tasks and 17 barriers. The questionnaire was sent to the directors of athletics of the 48 member universities and colleges of the Canadian Intercollegiate Athletic Union. Forty-one completed questionnaires were returned. Analysis of the data led to a list of 15 conclusions which are presented in the thesis.

304. HESS, Barbara M. *A cinematographic and mechanical analysis of the free backward hip circle on the uneven parallel bars*. M.S. in Physical Education, 1973. 51 p. (J. Genasci)

Female gymnasts ($N=5$) actively involved in a training program for competitive gymnastics were filmed. Two of the girls were in F.I.E. school and one was in HS. Each S performed 4 successful free backward hip circles which were filmed by 2 Cine-Kodak K 100 16-mm. cameras. Three DGWS nationally rated women gymnastics officials rated the film performances. The highest rated performance for each S was used for analysis. A list of findings regarding the movement of different body parts at different phases of the movement is presented. In general, all Ss showed a remarkable similarity in all phases of the movement.

305. HODGDON, Paula Drake. *An investigation of the development of interscholastic and intercollegiate athletics for girls and women from 1917-1970*. D.P.E., 1973. 236 p. (J. Parks)

Data for this study were obtained from the reports of women's athletic committees, the files and minutes of national and sectional organizations, correspondence, personal testimony, published journals, newsletters, textbooks and historical and descriptive studies. It was concluded that between the period 1917 and 1924 interscholastic athletics for women were very popular. However, highly restricted regulations forced the curtailment of this type of activity and the period from 1925 to 1946 was characterized by intramural sports, playdays, and sportsdays as the dominant forms of athletics for women. During the period 1947 to 1965 there was a renewed interest in women's athletics. Society is beginning to accept the increasingly competitive desires of girls and women and several women's sports organizations are promoting sound standards and guidelines for the proper conduct of women's athletics.

306. HOPKINS, John Edward. *The development of a wall volley test for skilled male lacrosse players*. M.S. in Physical Education, 1973. 46 p. (B. Jensen)

The Ss ($N=39$) for this study were college varsity lacrosse players with 2 or more years of experience from 4 N.E. teams. All Ss were administered a test of stick handling ability which was a combination of accuracy, right and left hand control, and the ability to eliminate cradling between catching the ball and redirecting it toward the target. Each S's score was based upon accuracy as well as the number of times the ball hit the wall. Six trials were given. The reliability of the test was .97 as estimated by the intraclass correlation technique. Validity was estimated in 2 ways. In one case, the Ss scores were correlated with group rankings based upon a subjective rating; this was found to be .65. In the second case, the Ss were divided into 2 groups: high skilled and poor skilled and a t test was used to assess the significance of the difference between the test scores of the 2 groups. This was found to be significant ($p < .01$) indicating a difference in test performance between the 2 groups.

307. HUTCHINSON, Bruce. *Locus of control and participation in intercollegiate athletics*. D.P.E., 1973. 93 p. (R. B. Frost)

The Ss ($N=585$) for this study were fulltime male undergraduate students from Southern Connecticut State College and Yale University. The Ss were classified as to team sport athlete ($N=306$), individual sport athlete ($N=179$), or nonparticipant ($N=200$). Participants from S.C.S.C. were further classified as P.I. majors or nonmajors. The Rotter Internal External Control Scale was administered orally. ANOVA indicated that there were no significant differences in locus between intercollegiate athletes and nonathletes, team sport and individual sport participants, and participants in 2 or 3 sports. Individual differences in

locus of control were shown by the great range of scores. Coaches and physical educators must utilize information regarding locus of control on an individual rather than a group basis.

- 308 JACKSON, Charles W. *Muscular strength, social adjustment, and personality traits in five socioeconomic groups*. D.P.E., 1973. 107 p. (R. B. Frost)

Ss for this study were 7th, 9th, and 11th grade boys ($N = 500$) from jr. and sr. HS in Norfolk and Virginia Beach, Virginia. They were stratified by socioeconomic level by means of the Two Factor Index of Social Position. Dependent variables were strength, social adjustment, and personality. Data were treated by ANOVA with socioeconomic level as 1 factor and grade level as another factor. It was found that there were no significant differences ($p > .05$) in muscular strength and social adjustment among the socioeconomic groups. There were some significant differences ($p > .05$) in personality traits among the socioeconomic groups. There were significant differences ($p > .05$) in strength, social adjustment, and personality traits among the 3 grade levels.

- 309 JACKSON, Robert Edward. *A comparative study of two methods of teaching springboard diving*. M.S. in Physical Education, 1973. 58 p. (R. B. Frost)

Students at Springfield College ($N = 36$) were matched and divided into 2 groups on the basis of results of the Johnson Motor Educability test. The exp. group received instruction in water stunts before learning to do the control group received no instruction. Following the application of the exp. variable (water stunts instruction) the Ss were rated by 3 experienced diving judges on their ability to perform 4 springboard dives. Data were analyzed by a t test for correlated means and revealed that the exp. group performed significantly better ($p < .05$) only on the front dive, 1/2 twist, pike position. There were no significant differences ($p > .05$) on the front dive, pike position; back dive, layout position; and the inward dive, pike position.

- 310 KELLY, James F. *An electrogoniometric and natographic analysis of the up and down phases of the dolphin butterfly kick*. M.S. in Physical Education, 1973. 40 p. (W. Summings)

Ss ($N = 5$) for this study were members of the Springfield College freshman and varsity swimming teams. Each S was tested for movement and movement time by the natograph and for the range of motion and movement time of the knee joint by the electrogoniometer. Each S swam using the whole stroke, with the arms only, and with the legs only. It was found that there were no differences in the velocities of the Ss through the water during the upkick or downkick while swimming with either the whole stroke or with the kick alone. The velocity of the knee joint during the down phase of the kick was faster than the up phase when swimming with the kick alone but there was no difference when swimming with the whole stroke. There were no differences between the velocities of the knee joint in the downkick and in the upkick when comparing the whole stroke with the kick only.

- 311 KONIECZNY, Richard Joseph. *A study to determine the differences in velocity and accuracy between two methods of executing a penalty kick in high school soccer*. M.S. in Physical Education, 1973. 43 p. (I. Schmidt)

Varsity soccer players ($N = 20$) from high schools in Western Mass., were tested. For studying differences in velocity a treatments by treatments by Ss design was used. One treatment was the type of kick (inside of the foot vs. instep) and the other was the position of the target (upper right and left, and lower right and left). All Ss were tested under all 8 conditions resulting from the factorial arrangement of treatments. ANOVA showed that only the main effect for type of kick was significant ($p < .05$). Inspection of the X times indicated that the instep kick had greater velocity than the inside of the foot kick. Data on accuracy were analyzed by χ^2 which showed no difference in accuracy between the 2 types of kick when shooting to the upper corners. However, the inside of the foot kick was significantly ($p < .05$) more accurate than the instep kick when shooting to the lower corners.

- 312 KOVACS, Joseph. *The evaluation of a "bounce drill" test as a measure of general soccer ability*. M.S. in Physical Education, 1973. 34 p. (J. Neumann)

The Ss ($N = 38$) were graduate and undergraduate students in Springfield College who were all experienced soccer players. They were administered both the McDonald and the "Bounce-Drill" tests of soccer ability. Each Ss soccer ability was rated by experienced soccer coaches. The correlations between the "Bounce-Drill" test and the McDonald test and the coaches' ratings were significant ($p > .05$). It was concluded that the "Bounce-Drill" test is a valid measure of general soccer ability.

313. LAURITS, Juhan. *A comparison of playing surfaces and types of shoes on speed and agility*. M.S. in Physical Education, 1973. 51 p. (W. Sullivan)

The 2 variables were the type of shoe (studded vs. ripple sole) and the type of playing surface (natural grass vs. poly turf). The Ss were 24 freshmen soccer players who were tested for speed and agility under the 4 exp. conditions resulting from the factorial arrangement of the 2 variables. Speed was measured by the 40-yd. dash while agility was measured by the right boomerang test. It was found that agility is greater on poly turf as compared to natural turf and greater with the ripple sole shoe than the studded shoe. Speed was faster on poly turf as compared to natural turf with both types of shoes. Speed is faster on a grass surface with the use of a ripple sole shoe. There was no difference in speed between the 2 shoes on poly turf.

314. MANN, Bernice Loretta. *A study of the differences in motor characteristics of the culturally deprived retardate, the organic retardate and the normal adolescent boy and girl*. M.S. in Physical Education, 1973. 36 p. (J. Genasci)

Ss ($N=65$) for this study were boys and girls between the ages of 11 and 15. Ten Ss were of normal intelligence; the remaining 55 were classified as familial mentally retarded or as organically retarded. The 2 mentally retarded groups were subclassified into high and low mentally retarded. All Ss were given tests of strength, running speed, jumping, throwing, balance, and agility. There were no differences in the motor performances of the high culturally retarded and the normal children except in balance and the SBJ where the normals scored higher. The low culturally retarded group scored higher than the high organically retarded group only on the SBJ. In the culturally retarded group, the males scored better than the females in only 2 of the tests, the softball throw and the 35-yd. run. In the organically retarded group only one difference was found. The females performed better than the males on the SBJ.

315. MAYS, Margaret A. *The history of the water safety program of the American National Red Cross*. D.P.E., 1973. 290 p. (M. Thorsen)

Data for this study were obtained from the archives, library, and museum at the American Red Cross headquarters in Washington, D.C. Also utilized were interviews with Red Cross executives and histories of the American National Red Cross. Analysis and interpretation of the data led to the following conclusions: (a) there has been a substantial reduction in the loss of life by drowning; (b) the focus of the Water Safety Program has shifted from life-saving to prevention of those circumstances which require the saving of a life; (c) the leadership of 3 individuals, Commodore Longfellow, Harold Enlows, and Carroll Bryant, was significant in the development of the Water Safety Program; and (d) the nature of the development of the Water Safety Program paralleled needs precipitated by socioeconomic, political, and technological influences.

316. McCUTCHAN, Thomas William. *A cinematographical analysis of the grab start in comparison to the conventional start in competitive swimming*. M.S. in Physical Education, 1973. 36 p. (W. Sullivan)

Ss ($N=20$) for this study were highly skilled competitive swimmers; 10 were college swimmers and 10 were HS swimmers. All Ss were skilled in the use of the grab start and competitive start and were tested for starting speed (over a distance of 23 ft.) using both types of starts. Speed was assessed through cinematographical methods. The exp. design was a 2×2 factorial arrangement with repeated measures on one factor. ANOVA showed the grab start to be significantly ($p < .05$) faster than the conventional start and the college swimmers to be significantly ($p < .05$) faster than the HS swimmers.

317. MEYERHOEFER, Clyde W. *The effects of two experimental variables on center performance time and efficiency*. M.S. in Physical Education, 1973. 37 p. (W. Sullivan)

Ss for this study ($N=15$) were randomly selected from a group of HS varsity football lineman. The 2 exp. variables were type of center snap (1 hand vs. 2 hand) and starting position (forward lean vs. no forward lean). All Ss completed all 4 conditions resulting from the factorial arrangement of the 2 exp. variables. Two dependent variables were measured, performance time (movement 1 yd. forward) and center snap efficiency (relative to fumbles). ANOVA was used to analyze the data and showed performance time to be faster when the 1 hand method of center snap was used and when the center was in a forward lean position. Center snap efficiency was greatest when utilizing the 2 hand method of center snap. There was no difference in center snap efficiency between the positions of forward lean and no forward lean.

318. MEYERS, Edward J. *A comparison of four methods of feedback in programmed instruction for teaching shooting in archery*. D.P.E., 1972. 138 p. (J. Parks)

Ss ($N = 100$) in this study were freshman boys from a HS in Connecticut. They were randomly assigned to 1 of 5 groups: (a) a pilot study group, not included in the final analysis, which enabled the investigator to test and make modifications in the programmed instructional materials; (b) basic program with no teacher assistance; (c) basic program with verbal feedback; (d) basic program with video feedback; and (e) basic program with verbal and video feedback. Each group practiced for a period of 3 wks. The AAHPER Archery Skill Test was administered before and after the practice period. ANCOVA showed no significant differences ($p > .05$) among the 4 groups. t tests showed that each of the 4 groups improved significantly ($p < .05$) in archery skill over the 3-wk instructional period.

319. NOW, Joseph R. *An analysis of selected perceptual motor readiness measures and reading performance*. D.P.E., 1973. 119 p. (R. Seymour)

The Ss ($N = 149$) for this study were 1st grade children in the public schools of Easthampton, Massachusetts. Four selected perceptual motor readiness measures (Metropolitan Subtests, Block Design, Evanston Early Identification Scale, and a "proposed test" developed by the investigator for assessing the ability of children in pattern walking tasks) were administered during the 2nd, 3rd, and 4th wk. of school in September, 1972. The Stanford Subtests which served as the criterion measure of reading performance were administered during the 1st week of May, 1973. Analysis of data by the 0-order and multiple correlation techniques revealed that all measures of perceptual-motor ability were related to reading performance. The "proposed test" related as well to reading performance as the other measures of readiness. The addition of the "proposed test" with the other readiness measures significantly increased the R with reading performance over that R obtained with all other selected measures.

320. OSIEL ANIWE, Emmanuel Bernard. *Estimation of body composition in male Negroes*. M.S. in Physical Education, 1973. 71 p. (W. Sinning)

Ss for the study were 30 healthy, male Negroes who were students at Springfield College. They were tested for body density (BD), lean body wt. (L.B.W.), 8 skinfolds, 8 skeletal diameters, and 6 circumferences. Estimates of BD and L.B.W. were obtained from the anthropometric measures utilizing the multiple regression equations of Pascale and coworkers, Sloan and Wilmore, and Behnke. L.B.W.s were computed from skeletal measurements and Behnke's computational procedures using k factors derived by Wilmore and Behnke on Caucasian males, as well as k factors which were derived specifically for the present sample. The r s were used to determine the degree of relationship between the true and estimated values of BD and L.B.W. It was concluded that the equations of Pascale and coworkers, and Sloan will validly estimate the BDs of Negro males. Only the equation of Sloan will accurately estimate the L.B.W. of Negro males.

321. REARICK, Daniel G. *Psychological effects of running the half mile by fast-slow, slow-fast and even paces*. M.S. in Physical Education, 1973. 41 p. (W. Sinning)

Two Springfield College distance runners were measured for $\dot{V}O_2$, O_2 debt, pulmonary minute volume, HR, and blood lactate concentrations during and after running 880 yd. on a treadmill under 3 pace conditions: (a) even pace, (b) slow first 440 yd., fast second 440 yd., (c) fast first 440 yd., slow second 440 yd. The total elapsed time was the same for all 3 paces. Following analysis of the data, it was concluded that there were no differences in the patterns of physiological adjustment due to pace.

322. SAWYER, C. Thomas. *The effect of running starts on a thirty yard dash*. M.S. in Physical Education, 1973. 23 p. (J. Genasen)

Ss ($N = 20$) for this study were HS varsity football players who were all tested for speed in running 30 yd. under 3 conditions: (1) running 5-yd. start, (2) running 10-yd. start, and (3) running 15-yd. start. ANCOVA for repeated measures was significant ($p < .05$). t tests showed that the 10- and 15-yd. running starts were significantly faster than the 5-yd. running start.

323. SOUTHAFF, Robert E. *Athletic competition and self-concept*. M.S. in Physical Education, 1973. 63 p. (W. Sullivan)

Ss ($N = 60$) were freshmen and sophomore HS students, 30 of whom were on JV teams in football, soccer, and cross country. The remaining 30 did not participate in athletics during the fall season. All Ss were administered the Tennessee Self Concept Scale (TSCS) prior to and upon completion of the fall athletic season. At the conclusion of the athletic season the group of athletes were subdivided into 1st and 2nd string groups based upon the number of games or meets in which they participated. ANCOVA was used to determine if there were differences in self-concept among the 3 groups. It was found that the 1st string group had lower feelings of personal worth, adequacy, and of their personalities than did the nonparticipant group. There were no differences in self-concept between the 1st and 2nd string athletes or between the 2nd string athletes and nonparticipants.

96. SPRINGFIELD COLLEGE and THE UNIVERSITY OF MICHIGAN

324. STAM, Mary R. *Extracurricular responsibilities and compensations for women high school physical educators*. M.S. in Physical Education, 1973. 93 p. (J. Bush)

The data used in this study were obtained from the responses to a questionnaire of women PE teachers in 88 public SHSs in Nassau and Suffolk Counties on Long Island, New York. Analysis of the questionnaire responses led to the following findings: (a) physical educators were responsible for the majority of girl's athletic activities, (b) the majority of schools adhered to the county guidelines in regard to the duration of sport seasons, (c) most schools did not have asst. coaches and most coaches were responsible for coaching both the varsity and JV teams, (d) the majority of physical educators were compensated for coaching responsibilities although many schools did not have written policies on compensation.

325. STEWART, Gloria Mae. *Performance curves from the dolphin kick and flutter kick used with the front crawl stroke*. M.S. in Physical Education, 1973. 77 p. (B. Jensen)

Ss (N = 6) were members of the women's Springfield College varsity swimming team. The Ss were tested once each week for 7 wk. for their speed in swimming 50-yd. using (a) dolphin kick, legs only, (b) flutter kick, legs only, (c) front crawl with dolphin kick, and (d) front crawl with flutter kick. ANOVA, to determine trend, was used to study the learning curves for each of the 4 performance conditions. It was concluded that the dolphin kick, legs only; the crawl with flutter kick, and the crawl with dolphin kick produce a linear trend which does not differ from a 0 slope. The flutter kick, legs only, produces a quadratic trend with a slope different from 0.

326. TATEM, Albert E. *Personality and physical variables between and among tennis players and other athletic and non-athletic*. D.P.E., 1973. 94 p. (I. Parks)

The Ss (N = 96) for the study were males from Old Dominion University between the ages of 18 and 23. All Ss were administered the Cattell 16 PF as well as tests for visual acuity and perceptual speed, and reaction time. Various comparisons were made utilizing ANOVA. It was found that there were no significant differences ($p < .05$) in personality among the players, nonathletes, and PE majors. There were significant differences ($p < .05$) in personality among baseball players, basketball players, gymnasts, and wrestlers. There were significant differences ($p < .05$) in personality between athletes and nonathletes. There were significant differences ($p < .05$) in visual acuity and reaction time among the various groups tested.

327. WALL, Kenneth A. *The influence of two motivational techniques on performance in the Brady Wall Volley Test*. M.S. in Physical Education, 1973. 42 p. (E. Bilik)

College males (N = 68) enrolled in a volleyball skills class at Springfield College were tested. Ss were divided into 3 groups and given a pretest (Brady Wall Volley). Ss in the first group (individual competition) were assigned a partner of equal ability and asked to compete against their partners during the posttest. Ss in the second group (ego-involvement) were told that their scores on the pretest were disappointing and were asked to improve their scores on the posttest. Ss in the third group (control) were given the same instructions for the posttest as they had received for the pretest. ANCOVA showed no significant differences ($p < .05$) among the 3 groups.

328. ZAHAR, Edward W. R. *The effect of a perceptual-motor learning program upon selected parameters of institutionalized epileptic retarded children*. D.P.E., 1973. 164 p. (W. Sullivan)

Ss (N = 56) for this study were epileptic retarded institutionalized children who ranged in age from 5 to 18 yr. They were paired by age and randomly assigned to an exp. or control group. The exp. group participated in Kephart's basic program consisting of 6 exercises. The control group participated in activities of a passive nature. The learning period for both groups was 7 days/wk. for 10 wk. The Ss were tested for perceptual motor ability, body awareness, self-concept, and adaptive behavior both before and after the 10 wk. learning period. ANCOVA showed significant differences ($p < .05$) favoring the exp. group in perceptual motor ability, body awareness, and adaptive behavior. There was no difference between the 2 groups in self-concept.

The University of Michigan, Ann Arbor, Michigan

(V. L. Katch)

329. RUSSELL, David Gra. *Spatial location cues in the generation of target directed movement*. Ph.D. in Physical Education, 91 p. (R. A. Schmidt, 1973)

Mankato State College, Mankato, Minnesota

(R. B. Moore)

330. ANDERSON, Richard L. *A comparison of isometric, isotonic, and isokinetic exercise on the development of shoulder joint strength*. M.S. in Physical Education, 1973. 98 p. (C. W. Thompson)
Male physical education students (N = 33) at Mankato State College were tested. A pretest was given to determine original strength levels in shoulder joint flexion and extension. Using random block procedures the subjects were assigned to 1 of 3 treatment groups. There were 11 subjects in each group. All groups trained for 6 wk. At the end of 2, 4, and 6 wk. a progress test was given to determine improvements in muscle strength. ANOVA was used to analyze the improvement scores. If any significant differences were obtained the Tukey procedures were employed to determine where the differences were. It was concluded that each 2-wk. training period produced significant increases in strength during shoulder joint flexion and extension. All 3 exercise programs produced significant increases in strength, but no significant differences were found between isometric, isotonic, or isokinetic exercise programs in developing strength during shoulder joint flexion and extension.

331. ARMSTRONG, James William. *A study to differentiate between offensive linemen and offensive backs at the ninth grade level of competition in tackle football using the AAHPER Football Skills Test*. M.S. in Physical Education, 1973. 67 p. (R. E. Stadulis)

The AAHPER Football Skills Test was administered to varsity team candidates (N = 33) at Marshall HS, Janesville, Wisconsin. Players either selected or were assigned positions, and coaches rated each player's ability at the season's end. Through ANOVA and Scheffe tests, only the 50-yd. dash with football, blocking, and zigzag run test items differentiated between backs and linemen (backs significantly faster). It was concluded that the entire AAHPER Football Skills Test did not differentiate between offensive positions, or between 1st and 2nd teams, and reserves.

332. BENSON, Richard A. *The transfer effects of bilateral practice on the performance of beginning fencers*. M.A. in Physical Education, 1973. 57 p. (R. E. Stadulis)

Se (N = 22) were enrolled in 1 of 2 beginning fencing classes and were randomly assigned to 1 of 2 treatment groups in a 2 x 2 factorial design with blocking on sex. The control group received normal preferred side instruction and practice while the exp. group received both preferred and nonpreferred side instruction and practice. Fencing performance was determined by won-lost record on the Flower Test of General Fencing Ability. Records for each treatment group were compared statistically by chi square, and no significant differences were found. It was concluded that in this study bilateral instruction and practice were as effective in teaching fencing as only normal preferred side instruction and practice.

333. HOLVBROOK, Sara A. *The history of women's intercollegiate gymnastic competition in Minnesota*. M.S. in Physical Education, 1973. 71 p. (V. R. Holbrook)

Source materials included texts, interviews, and the unpublished minutes of meetings attended by Minnesota's women collegiate gymnastic coaches. The development and growth of intercollegiate gymnastic competition for women in Minnesota appears to have 3 stages of development. (1) the beginning years were informal and unencumbered by rules and regulations, (2) The transition years saw a gradual structuring of rules and regulations, (3) The present structure is consistent with regional, national, and international standards. It was concluded that the growth of women's intercollegiate gymnastic competition in Minnesota has been guided by the college women gymnastic coaches of that state. The gradual emergence and changing of rules and regulations have been consistent with the increasing skill level of the gymnasts.

334. McCORD, Archibald Terrance. *The effects of placebo, amphetamine sulfate and placebo secobarbital sodium on resistance running performances of college football players*. M.A. in Physical Education, 1973. 80 p. (R. E. Stadulis)

The purpose of this study was to compare the total time, reaction time, and movement time of 2 placebo drug treatments (d amphetamine sulfate and secobarbital sodium), and a control treatment. The resistance was created by an Exer-Gene. College football players (N = 21) were each tested for 10 trials on each of the 3 treatments. The ANOVA for a 3 x 3 x 10 factorial design with repeated measures on the last 2 factors (drugs and trials) and Tukey Tests indicated placebo effects occurred for the secobarbital treatment. Placebo effects were observed when the personal feelings of the subjects were recorded and compared to their times. The subjects felt they were doing better, but in reality they were not, when under the amphetamine conditions.

University of Minnesota, Minneapolis, Minnesota

(J. Shick)

335. CHEATHAM, Glenn W. *Construction of an attitude scale for evaluation of student attitudes toward recreation*. Ph.D. in Recreation and Park Administration, 1973. 152 p. (J. F. Alexander and M. U. Wilson)

Educators and practitioners ($N = 22$) participated in the development and editing of attitude statements. Ss in 3 discrete groups included university students enrolled in physical education courses ($N = 95$), nonrecreation students enrolled in upper division education courses ($N = 248$), and undergraduate and graduate recreation students ($N = 144$) who participated in the construction of the Recreation Attitude Inventory containing 2 forms. Each form consisted of 14 items and was similar with respect to Thurstone scale, interquartile, and phi coefficient values. Interform r was found to be .85. Coefficients of reproducibility when compared with the coefficient of marginal reproducibility for each form were sufficiently high to determine that each form constituted a scale.

336. EKLIN, Duane E. *The influence of a remedial perceptual-motor program on the academic achievement of retarded junior high school students*. Ph.D. in Education, 1973. 100 p. (M. U. Wilson)

Retarded inner-city students enrolled in Special Education classes ($N = 162$) participated in a 2-part perceptual-motor study. (Phase 1) Ss ($N = 98$) were evaluated by the PPMS. Survey results were analyzed by dividing the Ss into 5 IQ levels and making statistical comparisons (ANOVA) among the groups. PPMS score results neither identified sensory-motor problems common to the retarded sample Ss nor indicated a progressive increase of motor disabilities according to the degree of mental retardation. Predictive relationships between IQ and motor ability were linear in design. (Phase 2) Ss were randomly placed into exp., placebo, and control groups. The exp. and placebo groups each met twice weekly for 9 wk., 2 hr/sessions. The exp. group ($N = 24$) took part in a remedial, progressive P-M activity program, designed to improve P-M skills. The placebo group ($N = 28$) took part in nonstudy activities, duplicating the exp. group in time and structure. The academic achievement of each S was evaluated by the PIAT, and comparisons among groups and IQ levels were analyzed by two-way ANOVA. The exp. group demonstrated a significant ($p < .007$) improvement in Reading Comprehension and a general positive ($p < .17$) improvement in academic achievement over the other 2 groups on the total evaluation.

337. OST, Mary A. *The effect of conflicting verbal and nonverbal information on the performance of certain body positioning tasks*. Ph.D. in Education, 1973. 73 p. (E. M. Jaeger)

Undergraduate women ($N = 160$) were presented with conflicting verbal and nonverbal information about 8 body positioning tasks. The order of presentation of the tasks was randomized. Four conditions of presentations were used; line drawings and printed text, projected drawings and tape recording, videotape, and live demonstrator with tape recording. The results were: 73% of the Ss performed the tasks based on the verbal information; no significant differences were found among conditions of presentation; and 3 tasks showed much higher levels of visual response than the other 5. It was concluded that the factor(s) which control behavior in situations of discrepant information are centered primarily within the tasks themselves. It was hypothesized that these task factors may be concerned with either a serial position or recency effect and/or proactive interference.

338. PARSLEY, James D. *A study of selected aspects of the intramural programs at two liberal arts colleges*. Ed.D., 1972. 192 p. (E. Jaeger and P. Bird)

A questionnaire and opinionnaire, devised by the writer, were used in this study. Using the questionnaire, the intramural program at the College of St. Thomas was evaluated by a 5-member jury of intramural experts, the 5-member physical education faculty, and a random sample of the soph. jr., and sr. classes. The opinionnaire was used to determine the opinions of the students attending the Colleges of St. Thomas and St. Catherine concerning a corecreational program. The opinionnaire was administered to a stratified random sample of the students of both schools. The jury, faculty, and students indicated that the present program adequately meets the students' needs but could be improved by more student involvement in program administration, more publicity, a program for the handicapped and increased corecreational activities. They further indicated a need for improvement of some facilities. Participants should be protected by the school health service and transportation should be provided for off-campus activities. The opinionnaire revealed that the students desire a corecreational program and the present program should be expanded. The students preferred corecreational volleyball and softball with late afternoon and early evenings being the preferred times for participating. Based upon the results of the study, programmatic recommendations were made to the respective schools.

- 339 STAPLES, Harold E. *An electromyographic analysis of selected exercises for the prevention of knee injury*. Ph.D. in Physical Education, 1973. 252 p. (M. U. Wilson)

The activity of 8 muscles (vastus medialis, vastus lateralis, rectus femoris, semitendinosus, semimembranosus, biceps femoris, gracilis, sartorius) during 5 selected resistive exercises (knee extension, knee curl, vertical leg press, half squat, Klein bench technique) was examined using EMG and Elgon techniques. Results indicated that half squat elicited the greatest activity in VM and VL, bench technique ranked first for RF, knee curl was most active for all flexors examined; vertical leg press was ranked second for hamstrings, VM, and VL, the conclusions drawn by inspection analysis were strongly supported with statistical agreement, most exercises elicited muscular activity over a limited range of knee joint movement except knee curl exercise which activated all flexors throughout a complete range of movement and vertical leg press which activated quadriceps during first half of extension and hamstrings in last half of positive work. The half squat, with toes pointed outwards, diminished muscular activity in VM oblique, not in VM longus. Small differences in favor of front squat over back squat were found. The full squat elicited more activity, higher intensity, and over a greater range of movement in the majority of muscles than did half squat.

- 340 STEVENSON, Michael J. *The effects of artificial and natural turf on injuries, and selected player, team and game variables in college intramural touch football*. Ph.D. in Physical Education, 1973. 226 p. (B. D. Anderson)

Teams (N = 64) representing 4 divisions were randomly selected to participate in the study conducted during the 1971 touch football season at the University of Michigan. Eight of 16 teams representing each division were randomly assigned to play all games on either Tartan or grass fields. Of 834 players representing the selected teams, 628 responded to both pre- and postseason questionnaires and were determined to be the study group. Sixty Tartan games and 64 grass games were played during the 4-wk. study period. Player data were collected by use of pre- and postseason questionnaires. All games were monitored and pertinent injury, game, team, and environmental data were collected. Significantly more total injuries and minor injuries occurred on artificial turf than on natural turf, while the difference in serious injuries comparing the 2 surfaces was not significant. Player opinion regarding game-related factors was significantly more positive for individuals on artificial turf than for those playing on natural turf. The nature of the game of touch football relative to the factors of scoring, method of scoring, first downs and penalties is essentially the same when played on artificial and natural turf.

Central Missouri State University, Warrensburg, Missouri

(M. E. Lyon)

- 341 ECKHOFF, Barbara J. *Survey of the intramural and extramural programs for senior high school girls in Missouri*. M.S. in Physical Education, 1973. 84 p. (M. E. Lyon)

Questionnaires were mailed to a random sample of Missouri A, AA, and AAA SHSs. The data indicated that the higher the classification of the school, the higher was the probability for having an intramural program, a larger variety of activities, and additional salary paid to the director. Few schools offered coeducational programs. There were more extramural programs than intramural programs. Women PE teachers were primarily responsible for conducting intramural programs and coaching in all classifications except for coaching in class A schools. More individual than team activities were offered in both intramural and extramural programs.

- 342 HEICHER, Patricia D. *A comparison of the pulse rates of female smokers and nonsmokers before, during, and after exercise*. M.S. in Physical Education, 1973. 50 p. (B. J. Bailey)

The starting, exercise, and recovery PRs of college women nonsmokers (N = 31) and smokers (N = 24) were compared. The exercise session was a 5-min ride on a bicycle ergometer with 50 pedal rpm and with resistance increased from 0 to 3 kpm during exercise. The nonsmokers had a significantly ($p < .05$) lower starting PR and exercise PR, but there was a greater increase between these two in the nonsmokers than in the smokers. The smokers' PRs returned to normal more quickly than the nonsmokers.

- 343 WITCHER, Michaela M. *The difference in kinesthetic sense between female athletes participating in selected individual and team sports*. M.S. in Ed., Physical Education, 1973. 55 p. (B. J. Bailey)

Women college varsity participants in basketball, field hockey, volleyball, bowling, gymnastics, and tennis were given the balance stick lengthwise, vertical space, gross movement and 20° leg raising kinesthesia tests. Differences between groups were not significant ($p > .05$) except for the difference between basketball and volleyball players on the vertical space test.

University of Missouri, Columbia, Missouri

(J. A. Roberts)

- 344 DASHI, Michael L. *The effect of initial fitness and exercise intensity on trainability of cardiorespiratory parameters in females*. M.A. in Physical Education, 1973. 108 p. (B. R. Londerree)

Young adult females ($N = 70$) were classified as active or inactive by the extent of recent physical activity and as low or moderate relative to the size of their max $\dot{V}O_2$ (ml/kg/min). Ss were pretested on max $\dot{V}O_2$ and recovery HR, then randomly assigned to 1 of 3 training groups or a control group. The speed necessary to elicit the steady state HR in the specified intensity range for each exp. S was determined on the treadmill. The Ss walked or jogged for 8 wk. as members of training groups at 130 bpm, 150 bpm, or 170 bpm. Ss in each training group performed 65,000 ft/lb of external work per workout. At the end of the training period Ss were posttested. An ANCOVA was used to compute the significance. The results revealed no significant differences ($p > .05$) in the changes of either dependent variable for any main effect or interaction.

- 345 FLENTJE, William W. *The effects of taping on ankle range of motion*. M.A. in Education, 1973. 44 p. (J. A. Roberts)

College varsity wrestlers ($N = 12$) served as Ss. Each S received, on different occasions, 4 treatments to each ankle, using combinations of cloth backed tape, elastic-tear tape, pretape underwrap, and no pretape underwrap. Ankle ranges of motion were taken prior to taping, immediately after taping, and immediately after a period of exercise. Analysis of the data demonstrated that immediately after application cloth backed tape limited ankle range of motion significantly ($p < .05$) more than elastic-tear tape. Elastic-tear tape was superior to cloth backed tape in retention of tensibility, enabling it to limit ankle plantar flexion-dorsiflexion for an extended period of time. Pretape underwrap appeared to play a minor role in determining ankle joint range of motion. Inversion-eversion proved to be an extremely complex motion to limit or control with adhesive tape.

- 346 GOLDBERG, Dennis L. *The role of anaerobic glycolysis as an endurance determining factor in occlusive isometric contraction*. M.A. in Education, 1973. 135 p. (B. R. Londerree)

Males ($N = 8$) were trained isometrically to selectively increase their isometric grip strength in order to examine the effect of increased isometric strength upon relative isometric endurance, total and rate of lactic acid production, total force production, and electromyographic activity. Lactic acid has been designated by some authors as the factor responsible for local muscular fatigue. The existence of an inverse relationship between strength and relative endurance prompted the author to theorize that the factor which causes increased strength must also increase the lactic acid production rate in order to account for the negative correlation with relative endurance. The results indicate a very strong relationship between maximum strength and relative endurance, but the increase in strength failed to manifest itself in a decrease in relative endurance. The author concluded that the lack of change in endurance time did not prove the hypothesis unfounded, but was an artifact of the training and testing procedures.

- 347 HOROWITZ, Stephen M. *The effect of strength and endurance training with and without rest on the development of muscle hypertrophy*. M.A. in Physical Education, 1973. 102 p. (B. R. Londerree)

Male students ($N = 43$) registered for weight training were pretested for strength, relative dynamic endurance, biceps and triceps skinfolds, and upper arm circumference. The exercise employed was the biceps curl. Training consisted of 2 wk. of learning lifting techniques followed by 6 wk. of intensive weight training. Ss were randomly assigned to 1 of 4 treatment groups in which they performed either a strength or endurance program and exercised either 3 or 5 day/wk. The 5th group was a nonequivalent control from other activity classes. Results indicated that all groups increased in strength. The 5 day/wk strength training program produced the most significant strength gains. All groups except the 5 day/wk strength group made significant ($p < .05$) endurance gains, with the 5 day/wk endurance program producing the most significant gains. The endurance-training groups had significantly greater endurance gains than the strength groups. There were no significant changes ($p > .05$) in biceps and triceps skinfolds but the endurance programs produced greater decrements in skinfolds than did the strength programs. All treatments except the 3 day/wk strength group produced significant ($p < .05$) muscle hypertrophy.

- 348 THOMAS, Tom R. *The effect of initial fitness and exercise intensity on physical work capacity in females*. M.A. in Physical Education, 1973. 130 p. (B. R. Londerree)

Young adult females ($N = 70$) were classified by the extent of previous physical activity and by the magnitude of their initial max $\dot{V}O_2$ (ml/kg/min). Ss were pretested on PWC₁₅₀ and PWC₁₇₀ during 1 workout

on the treadmill, then were randomly assigned to 1 of 3 training groups or a control group. Ss walked or jogged for 8 wk as members of groups training at HRs of 130, 150, or 170 bpm. Each training group accomplished 65,000 ft/lb of external work. The duration of each workout was dependent upon the intensity of the exercise. At the end of the training period, the Ss were posttested on the PWC tests. An ANCOVA and an *ad posteriori* *t* were used to compute the significance of improvements in PWC times among the groups. The results revealed no significant differences ($p > .05$) in PWC₁₅₀ changes among groups. Significant differences ($p < .05$) were obtained in PWC₁₅₀ gains between the 3 training groups and the control and between the 150 group and the 130 group.

349. YERKES, Rita M. *The effects of a perceptual-motor training program on children who have been diagnosed as underachievers in school but who have acknowledged ability*. M.A. in Physical Education, 1973. 59 p. (L. E. Johnson)

Three Ss, ranging in age from 7 yr. to 10 yr., were diagnosed by a Learning Disabilities Laboratory and a Mental Health Center as underachievers in school who, nevertheless, possessed acknowledged ability. The Ss were pretested by the Perceptual Motor Clinic of the University of Missouri-Columbia and diagnosed as exhibiting perceptual-motor dysfunction. Ss then underwent perceptual-motor training for 6 mo. with 2, 30-min sessions/wk. After 6 mo., the Ss were given the Wechsler Intelligence Test for Children and the Purdue Perceptual Motor Survey. When pretest and posttest scores were compared, all Ss demonstrated increases on the Perceptual Motor Survey but changes on the Wechsler Scale varied from 0 to 19 points improvement. Subjective evaluations by parents indicated subjects improved in such areas as self-confidence, physical performance, social relationships, and general school work.

350. VRADISBURG, Vernon G. *Effects of skill progression variation, swimming technique, and the use of a waist type flotation device upon the performance of beginning swimmers*. Ed.D., 1973. 142 p. (L. E. Meyen)

Ss were male college students, ranging in age from 17 to 25 yr., enrolled for beginning swimming instruction. Preexperimental equivalence was established among 3 treatment groups for both the combined stroke on the front and the combined stroke on the back by use of ANOVA. The instruction period for each exp. group consisted of 18 lessons and the treatments employed were the American Red Cross, Drownproof, and Handfloat Concept methods of beginning swimming instruction. Criteria for performance were distance in swimming the combined stroke on the front, distance in swimming the combined stroke on the back, time in performing the back float, and time treading water. ANOVA and Tukey's HSD test revealed that statistically significant ($p < .05$) differences among groups on only 2 of the performance variables. The Drownproof method was significantly better for teaching the combined stroke on the front and the Handfloat Concept method was significantly better for teaching the back float.

Southeast Missouri, Cape Girardeau, Missouri

351. WADINGTON, Richard M. *A comparative study on the effectiveness of two grips for teaching beginning golf*. M.A. in Teaching, 1972. 51 p. (L. Schneider)

The purpose of this study was to determine the effects of using the Vardon overlapping grip and the interlocking grip with respect to golfing ability with the 5 iron for beginning male golfers. The Vanderhoff 5-iron test was administered to each subject in 2 beginning golf classes. The classes were 40 min. in length and met twice a week for 18 wk. The subjects were divided by random sampling into a group which used the overlapping grip and another which used interlocking grip. The statistical findings showed the overlapping group had a mean score of 6.72 and the interlocking group had a mean score of 6.38. The results indicate that there is no significant difference between the effects of utilizing the 2 grips with respect to golfing ability with the 5 iron for beginning golfers.

Columbia University, New York, New York

352. SPAETH, Ree K. *Skill acquisition under variable temporal constraints. Cinematographic analysis of movement organization*. Ed.D., 1973. 324 p. Teachers College, Columbia University.

A 2-study sequence was conducted to investigate the nature of movement organization during acquisition of the open skill of dart-throwing at a moving target. Three target speeds were employed; target distance and height were held constant. In study I, 20 adult male Ss performed 60 trials of dart-throwing at a laterally moving target. Evidence was produced of improvement in accuracy of performance with practice and was interpreted as an indication of acquisition. Secondly, the timing of dart release was differentiated in accord with the speed of target presentation. Study II focused on the relationship between spatial/temporal characteristics of the movement response and the imposed environmental conditions of spatial stability and temporal variability. A high-speed film record was made of the performance of 6 adult male Ss during 60 trials of dart-throwing. Three distinct movement patterns were exhibited, corresponding to performance under each of the 3 target speeds. The duration of both the premovement interval and the preparatory phase of movement was differential with respect to target speed. In contrast, it seemed that an attempt

102 UNIVERSITY OF MISSOURI and NEW YORK UNIVERSITY

was made to maintain a constant duration of the action phase of movement and subsequent dart velocity. In addition, both the spatial anchor points and the angular orientation of the final action phase of movement remained relatively constant across speeds of target presentation. Results were interpreted as providing support for response leading to goal-attainment in a specific situation.

- 353 STEWART, Kerry J. *Changes in physical working capacity as a result of physical training in children with reference to the methods of assessing such changes*. Ed.D., Teachers College, Columbia University, 1973. 92 p. (B. Guttman)

Max $\dot{V}O_2$, submax $\dot{V}O_2$, and HR, and predicted max $\dot{V}O_2$ were examined pre- and posttraining in boys, aged 10-12 yr. (N = 13) training, (N = 11) controls. Max $\dot{V}O_2$, usually thought to be the best measure of physical working capacity, did not increase significantly. On the other hand, submax HR during bicycle and treadmill exercise decreased 10-13 bpm ($p < 0.05$), while submax $\dot{V}O_2$ remained unchanged. These findings suggest that submax physiological and performance measures are as important as max ones in the assessment of physical working capacity since most work tasks proceed at a submax. rate. Furthermore, the test of predicted max $\dot{V}O_2$ used was not satisfactory in predicting max $\dot{V}O_2$ or in depicting changes in max $\dot{V}O_2$ after training.

New York University, New York, New York

- 354 KLEINMAN, Matthew. *The effects of the length and distribution of the practice period on the learning of selected motor skills*. Ph.D., 1973. 97 p. (R. C. Brown)

The purpose of this investigation was to test the hypothesis that distributed practice proves superior to massed practice for the learning of 3 discrete gross motor skills (the floor kip, the front hip circle mount, and the glide kip). An ANCOVA was used to ascertain whether significant differences in rates of learning existed between the exp. groups. Metheny-Johnson motor educability test scores were used as the control variable. There were no significant differences in rates of learning between exp. groups on any of the criterion tasks.

- 355 GOLDMAN, Myra F. *The learning, retention, and bilateral transfer of a motor skill by college women as a function of mental practice, physical practice, and mixed practice*. Ph.D., 1972. 153 p. (R. C. Brown, Jr.)

Four separate hypotheses were tested as an outgrowth of a general hypothesis that various practice techniques, including MP, PP, and various combinations of M/P practice have different effects upon the learning, retention, and bilateral transfer of a motor skill. College women (N = 200) were randomly selected, and randomly assigned, to 8 treatment groups. The skill used required the Ss to manipulate a wooden device consisting of a handle and cup with an attached, suspended ball. Statistical techniques involved use of ANCOVA and the Newman-Keuls multiple comparison test. The results in general failed to support the hypotheses concerning the role of various practice techniques in motor skill learning, retention, and transfer. The study did concur with previous research that supported PP as the most effective technique in motor skill learning, but it failed to yield any conclusive evidence in regard to retention and transfer.

- 356 PECHAR, Gary S. *The effects of specific training upon the difference in max $\dot{V}O_2$ scores between treadmill and bicycle ergometer tests of cardiorespiratory function*. Ph.D., 1973. 66 p. (R. A. Weiss)

Ss (N = 60) were randomly assigned to 3 training conditions: treadmill training, bicycle ergometer training, and no-training. The treadmill and bicycle groups exercised 20 min/day, 3 day/wk for 8 wk. at a work intensity which elicited a heart rate equal to 85% of max. HR. The no-training Ss continued their normal activity patterns. All Ss were pre- and posttested on both the treadmill and bicycle ergometer max $\dot{V}O_2$ tests. When compared with the treadmill training and no-training programs, the bicycle ergometer training program produced a significantly greater reduction ($p < .01$) in the difference between max $\dot{V}O_2$ scores as measured by the treadmill and bicycle ergometer tests.

Microcard

- 357 PURITZ, Susan E. *A comparison of the effects of dance and physical education on the self-concept of selected disadvantaged girls*. Ed.D., 1973. 82 p. (P. A. Rowe)

It is generally accepted that at least a good part of the reason for the lower mean levels of academic performance which are commonly found among disadvantaged children is due to their poor self-concept, which in turn has been engendered by their social environment. It is likewise contended by proponents of modern educational dance that one of the desirable features of this art medium is its value in the development

NEW YORK UNIVERSITY, ST. JOHN'S UNIVERSITY, STATE UNIVERSITY
COLLEGE AT BROCKPORT, and STATE UNIVERSITY OF NEW YORK AT
BUFFALO

103

of a positive self-concept. This research was constructed to test this hypothesis. This study exposed ($N = 75$) disadvantaged, inner-city, E.L.L. school girls, in their regular school setting, to classes in modern educational dance as a substitute for the standard, required PE curriculum to which a control group of ($N = 75$) girls were exposed. A t test for significance of differences between differences, indicated statistically significant positive findings in the self-concept of those girls who had received modern educational dance as a substitute for PE. A later comparison indicated that these significantly positive findings were of a long-term nature.

St. John's University, Jamaica, New York

358. FRICKSON, Audrey M. *A study of the nature, frequency, and related administrative factors of physical education accidents among girls in a selected sample of secondary schools in New York State*. Ph.D. in Educational Administration and Supervision, 1969. 176 p. (Z. Mahdesian) 192 of the 880 schools, exclusive of New York City, selected by proportionate stratified random sampling, completed a detailed report on personal and administrative factors for each accident in girls' physical education and daily number of pupil exposures in each activity for 1 academic year. Overall accident rate was .02% but varied with different activities, being highest in skiing and touch football. The greatest number of accidents, but also the greatest number of exposures, occurred in basketball and volleyball. Of administrative factors, reported in 34% of accidents, facilities, supervision, and scheduling occurred with about equal frequency and each significantly more often than equipment involvement ($p < .05$). In 40% of accidents with administrative factors, the primary cause involved large class size in relation to space and teachers available. Most accidents were not serious: strains, sprains, and bruises comprised 70%. The leg or foot was affected more frequently (40%) than other body parts. Number of accidents was greatest in classes but incidence highest in interscholastics. PE instructor was present in 97% of occurrences. 17% of all accidents occurred in October. 61% of all accidents occurred in SHS, with 11th grade having the greatest proportion (23%) and 7th grade the least (10%).

State University College at Brockport, New York

(M. L. Puthoff)

359. WOLFGANG, James. *The effect of unsensory event certainty on the psychological refractory period*. M.S. in Education, 1973. (R. W. Christina)
Ss ($N = 80$) performed a simple reaction task at either a low, moderate, or high level of certainty. Each subject had 40 trials. The data revealed 2 patterns of results, the expected psychological refractory pattern and a reversed pattern. ANOVA showed a significant difference among treatments. Using the Newman-Keuls, it was seen that the low level of certainty was significantly slower. This study supported the hypothesis that increasing certainty decreases the delay in reacting to the second of 2 closely spaced stimuli with an interstimulus-interval of 50 msec. Further study was suggested since it was also shown that the pattern of reactions in a dual presentation of stimuli may be reversed.
360. HANSEN, Linda Sue. *The effects of coaction and selected grouping procedures on the learning and performance of a motor task by educable mentally retarded pupils*. M.S. in Education, 1972. (J. P. Winnick)
Subjects ($N = 36$) with IQs ranging between 50 to 75 performed a tapping test in either an interclass situation (Ss in different classes), an intraclass situation (Ss in the same classes), or isolated situation. Each subject had 10 trials for learning and 10 trials for performance. The results of a repeated measures ANOVA technique, used to determine criterion scores, indicated that there was a significant difference within 20 trials, but no significant differences between groups and subgroups. Application of a post hoc procedure on all 20 trials revealed a difference in means up to trial 17. Results of an analysis by means using the means of the first and second set of trials as criterion scores produced significant results only in phase I and phase II (learning and performance). It was concluded that coaction and selected grouping procedures, as employed in this investigation, did not have a significant effect on the learning of a simple motor task.

State University of New York at Buffalo, New York

(C. R. Meyers)

361. PENDERGAST, David R. *An analysis of the mechanical work and efficiency of swimming the overarm crawl at two velocities*. Ed.D. in Physical Education, 1973. 256 p. (C. R. Meyers)
Male swimmers ($N = 10$) were studied to validate a unique method of determining the body drag (D_b), efficiency (e), and VO_2 of actual swimming. At constant velocity, v , the W of a swimmer is the product of his D_b times the v of swimming or VO_2 times e . These 2 expressions can be rearranged to form

104 STATE UNIVERSITY OF NEW YORK AT BUFFALO, APPALACHIAN STATE
UNIVERSITY, BOONE, and EAST CAROLINA UNIVERSITY, GREENVILLE

a single expression that includes the important factors involved in the energetics of swimming, $D_0 = v = c \cdot \text{VO}_2$. To determine the drag actually experienced by a swimmer, known drags were added to or deleted from swimmers moving at constant v around a 60 m. circular pool while steady state VO_2 net was measured. If c was constant, any increase or decrease in D would result in a proportional change in VO_2 , v being constant. This being the case, the regression of VO_2/D should be linear, as was demonstrated under all conditions, thus enabling the direct calculation of D , c , and VO_2 . The reliability of the measures was demonstrated by the test-retest method. By rearranging the basic formulation an equation can be written to show $v = \text{VO}_2 / (c/D_0)$. The VO_2 measured during this study was similar but the c and e values were two-times those reported by others based on passive towing at comparable speeds.

Appalachian State University, Boone, North Carolina

(J. T. Kearney)

362. BYRNES, William C. *The interrelationships between predicted and actual measures of max VO_2 and running performance*. M.A. in Physical Education, 1973. (J. T. Kearney)

Male college students ($N=33$) ranging in age from 18 to 25 yr. were tested. Volunteers ($N=11$) were tested from each of the following 3 subgroups, nonphysical education majors, group 1, physical education majors, group 2, and trained runners, group 3. The tests administered to each subject were actual max VO_2 , predicted max VO_2 , and 1/2, 1-, and 3-mile running performances. Actual max VO_2 were determined by an open-circuit, Douglas Bag procedure and predicted max VO_2 obtained by application of the Astrand-Ryhmning nomogram. The relationships between predicted and actual max VO_2 (ml/min) were $r = .65$, $r = .73$, $r = .36$, and $r = .73$ for groups 1, 2, 3, and a composite group. The relationships between actual and predicted max VO_2 (ml/kg) and 1/2-, 1-, 3-mile running performances for the composite of the 3 subgroups were $r = -.69$, $r = -.45$, $r = -.73$, $r = -.46$; and $r = -.75$, $r = -.67$, respectively. The magnitude of these relationships varied among the subgroups and generally increased as a function of distance.

363. DOUGHTY, Kathryn L. *The effect of different stepping levels and computational methods upon the appraisal of cardiovascular efficiency among females of selected heights*. M.A. in Physical Education, 1973. 82 p. (V. K. Christian)

Females ($N=58$) with standing ht. of 61-63 in. and 67-69 in. were tested during 3 conditions of bench stepping at heights of 13 in., 21 in., and patella ht. Cardiovascular indices were computed by 4 methods: the classical, the rapid, the new classical, and the new and rapid. The data were analyzed by an ANOVA. The cardiovascular indices computed by all 4 methods were significant ($p < .01$) at the 13 in. stepping level. No significant differences ($p < .01$) were revealed between the indices of the 2 height groups or the standing height by stepping height interaction.

364. KENNEDY, Donald E. *The effects of wheat germ oil on the precordial T wave of cross country runners*. M.A. in Physical Education, 1973. 69 p. (J. T. Kearney)

Three electrocardiographic tests were administered to 2 groups of Ss. 1 group ($N=4$) ingested a dietary supplement wheat germ oil, while the other group ($N=4$) consumed a nonnutritive placebo. The recordings were made in the precolonial position under the conditions of reclining rest, 30 sec. after a bench stepping exercise, and at 5 and 10 min. intervals following the exercise. Tests were administered at the beginning of the season and subsequent to 4 and 8 wk. of college-cross country training. A 2×3 factorial design with repeated measures on the 2nd factor revealed no significant differences in regard to the effects of the dietary supplements. The effects of training revealed a significant gain in T wave amplitude only in the immediate postexercise condition. Additionally, there was no evidence of significant interaction between dietary supplementation and training.

East Carolina University, Greenville, North Carolina

(B. Gantt)

365. DRAFFIN, Charles Ernest. *A study of the effects of the duration of localized fatigue on selected physiological and motor functions*. M.A. in Physical Education, 1972. 101 p. (L. L. Kendrick)

College males ($N=11$) were pretested on 6 tests of flexibility with a Leighton flexometer, balance as measured by the dynamometer, total body response time, and vertical jumping ability. A programmed fatigue bout (4-16 min.) was conducted on a treadmill, and Ss were posttested 24 hr. and 48 hr. after fatigue. This format was repeated for 3 different test weeks to determine the reproducibility of fatigue effects. ANOVA with orthogonal comparisons were used in data analysis. Knee flexion was impaired 48 hr. following fatigue ($p < .01$), but not at 24 hr. Vertical jumping ability was impaired at 24 hr. ($p < .05$), and the 48-hr. postfatigue value was lower than a combination of prefatigue and 24 hr. fatigue.

There was no change in balance between pre-fatigue and 24-hr. fatigue scores, but 48-hr. fatigue scores were improved over the combined effect of pre-and 24-hr. fatigue ($p < .05$). Balance scores improved ($p < .01$) during the 3-wk. tests, which was attributed to learning. The 3-wk. conditions of wk. 1, wk. 2, and wk. 3 were different for flexibility in hip extension ($p < .01$), hip flexion ($p < .05$), knee flexion ($p < .01$), and body response time ($p < .01$). The 3-wk. conditions were not different for flexibility in ankle plantar flexion, bench test of hip flexion, and vertical jumping ability, indicating effects of an 8-16 min. fatigue bout are reproducible in these parameters.

366. ELLENBERGER, Timothy Roy. *The effects of takedowns and reversals on the outcome of wrestling matches*. M.A. in Education, 1972. 29 p. (R. H. Martinez)

A survey was conducted as to the number of takedowns and reversals scored by wrestlers who placed 1st, 2nd, 3rd, and 4th in 6 NC AA collegiate tournaments. ANOVA was used to determine significance of differences between winners and losers in lower wt. classes (118-134 lb.), upper wt. classes (167-190 lb.), and for all wt. classes. Winners in lower wt. classes, upper wt. classes, and all wt. classes scored more points than losers by takedowns ($p < .01$). Winners scored more points than losers by reversals for all wt. classes, but not for lower wt. or upper wt. classes. Both winners and losers scored more points by takedowns than by reversals in all wt. classes ($p < .01$), and in lower wt. classes ($p < .05$). Losers scored more points than winners by reversals in the lower wt. classes ($p < .01$) and upper wt. classes ($p < .01$). It appears that coaches should allot more practice time in developing takedown skills, particularly in lower wt. classes.

367. FORBES, Charles Edward. *The effects of the bench-jump exercise on the development of agility, vertical-jumping ability, and total body response time*. M.A. in Education, 1972. 44 p. (L. L. Kendrick)

College males ($N = 22$) were randomly divided into an exp. group that trained 4 wk. (3 days/wk. 2-2.5 min/day) on a bench-jumping drill, and a control group that did not exercise. The exp. group improved in total body response time to an audible stimulus ($p < .01$), complex total body response time to a visual stimulus ($p < .05$), and vertical jumping ability ($p < .01$). The exp. group failed to make significant gains in the Barrow agility run. The control group failed to make significant gains on any of the test items. ANOVA indicated the exp. group made gains greater than the control group in the vertical jump ($p < .01$). Other comparisons between groups were not significant.

368. GALLAGHER, Jere Dee. *A comparative study of two methods of teaching beginning swimming*. M.A. in Physical Education, 1972. 40 p. (E. W. Schwarz)

Beginning college swimmers in PE ($N = 28$) were enrolled in either a "traditional methods" class or a "movement education" methods class in beginning swimming. Both groups practiced 1 hr. daily (2 days/wk) for 13 sessions. Pre- and posttests were given in total distance Ss could swim continuously during 12 min. Both groups improved in swimming ability ($p < .01$). Although the M gain of the group taught by movement education methods was higher than the M gain of the traditional group, the difference was not significant.

369. HUNGATE, Kenneth Wayne. *A study of three methods of initial arm movements used after a competitive backstroke turn*. M.A., 1972. 77 p. (R. H. Martinez)

Three methods were investigated: alternate-arm pull, surrogate alternate-arm pull, and the double-arm pull. Male varsity swimmers ($N = 11$) practiced 20 min. daily and were tested on Sunday. They were randomly placed in 3 groups, and a counter balanced rotation technique was used during the 3 wk. An Aquatic Swim Controller with sighting devices was used for collecting times at 5, 10, and 15-yd. distances. The double-arm pull method was superior to either the alternate-arm pull or the surrogate alternate-arm pull method at all 3 distances investigated ($p < .01$). The alternate-arm pull method was better than the surrogate alternate-arm pull method at distances of 10 and 15 yd. ($p < .05$).

370. KILPATRICK, Pamela Jean. *A study of the effectiveness of two methods of teaching beginners to swim*. M.A. in Physical Education, 1972. 38 p. (R. H. Martinez)

College beginning swimmers ($N = 25$) were assigned to either a beginning swim instruction program of a traditional nature or to a drownproofing class in PE. Instructions were given 1 hr. daily (2 day/wk.) for 6 wk. Equal allotments of time were allowed for the same skills in each class. However, in the drownproofing class, drownproofing and mental and physical adjustments to the water were taught during the 1st session and emphasized throughout review sessions. The traditional group was not taught drownproofing until the 10th session. A pretest was given on the 1st class day and a posttest was given on the 13th day in total distance Ss could swim continuously in 12 min. Both groups improved significantly in swimming ability ($p < .01$), but ANOVA indicated neither group improved more than the other.

106 EAST CAROLINA UNIVERSITY and UNIVERSITY OF NORTH CAROLINA

371. McGRAIN, Peter. *The effects of a specificity-of-exercise training program upon circulatory-respiratory endurance and speed in swimming freestyle 200, 500, and 1,000 yards*. M.A. in Physical Education, 1973. 55 p. (R. H. Martinez)

At preseason, varsity swimmers ($N = 20$) were divided into a "Traditional" group and a "Specificity" group for training purposes. All Ss were pretested by swimming a 200-, 500-, and 1,000 yd. race for time. Ss were pretested on the Balke-Ware test for circulatory-respiratory endurance. The "Traditional" group trained by traditional methods employing an assortment of sprints, middle distance, and distance swimming 5 day/wk. The "Specificity" group used traditional methods 3 day/wk, but followed a specificity program on 2 day/wk involving the use of an underwater pacing device to aid the swimmer toward attaining an individual target time. After 4 wk. of training, both groups improved in all parameters investigated ($p < .01$), but no significant differences were found between groups.

372. ROBERSON, Johnny Lee. *A history of intercollegiate basketball at East Carolina University from 1931 to 1972*. M.A. in Physical Education, 1972. 88 p. (E. W. Schwarz)

This history was divided into definite eras of growth and development since basketball was established in 1931 as the 1st intercollegiate sport at East Carolina University. Problems that have hampered its development were identified as: location of the school and inadequate transportation facilities; an inadequate budget; lack of a modern playing facility; inadequate coverage by news media; and a sparsely settled population that was not conducive to attendance.

373. SCHAAI, Gary L. *A survey measuring the attitudes of selected college athletes toward financial aid*. M.A. 1972. 42 p. (E. W. Schwarz)

Football players at East Carolina University and Elon College were formed into the following groups based on the amount of financial aid received: group I = full grant, group II = part grant, and group III = no grant. Group IV was composed of a separate group of students playing club football. A questionnaire of 20 opinionated statements concerning financial aid in athletics was completed by each group. A 5-point scale was used for scoring, ranging from strongly disagree to strongly agree. A score of 3 indicated neutrality, while higher scores indicated a more favorable attitude toward financial aid. Mean scores were: group I = 3.45, group II = 3.58, Group III = 3.30, and group IV = 3.15. ANOVA indicated a difference between groups ($p < .01$). Orthogonal comparisons indicated no significant differences existed between members of varsity football teams regardless of the amount of aid received. A difference ($p < .01$) was found between club football players and the combined groups of varsity football players. Financial aid appears important to football players in that 59% of the full grant and 56% of the part grant recipients stated they could not attend school without a grant. Among the players who could afford expenses without a grant, 85% of the full grant recipients and 78% of the part grant Ss stated they would not continue to play football if their grants were terminated.

374. WILLIFORD, Jimmie Richard. *A study of the men's intramural program at East Carolina university*. M.A. in Physical Education, 1973. 117 p. (T. Johnson)

Personal interviews, the University's school newspaper, intramural records, and the school yearbook were used as references in establishing a history of Men's Intramurals. Considerable growth was revealed in this study, with a major expansion occurring in 1971 when student activity fees were allocated to intramurals. Recommendations for future planning, based on a questionnaire completed by male students, were: increase the number of handball courts; light some of the outdoor facilities; improve the intramural equipment checkout system; the addition of a complete corecreational program; and increase the men's intramural staff to provide increased opportunities in a growing university.

University of North Carolina, Chapel Hill

375. HAYNES, John B. *The impact of consultant assistance on North Carolina elementary teachers' attitudes relating to physical education*. Ph.D. in Education, 1973. 359 p. (S. M. Holton and W. H. Peacock)

An analytic survey was conducted using a stratified random sample of 238 public ELE schools with the cooperation of the N.C. State Department of Public Instruction during the 1972-73 school year. The survey instrument consisted of 3 scales of Kenyon's ATPAI (aesthetic, health and fitness, and social) and items adapted from Nokken's questionnaire. The rate of return by school was 99.6% and the average response rate within schools was estimated as 93.0% (range of 56.2% to 100.0%), producing a data set of 3,796 female classroom teachers and 205 male classroom teachers. ANOVA and χ^2 were used

to test 35 hypotheses at the .05 level. Based on findings when respondents were grouped by *school*, there was little evidence to indicate that in-service assistance provided by coordinators or specialists enhanced teacher attitudes and self-ratings relating to physical education. However, more favorable opinions concerning the adequacy of facilities and equipment, the adequacy of in-service assistance, and physical education as recess were associated with frequent consultant services. As predicted, comparisons of attitudes and self-ratings in relation to certain characteristics with the individual *teacher* as the unit of analysis generally favored: male respondents; younger, less experienced teachers; classroom teachers with extensive preparation; and primary grade teachers.

University of North Carolina, Greensboro

(G. M. Hennis)

376. ACTON, Katherine Klyman. *Images*. M.F.A. in Dance, 1972. 5 p. (V. Moormaw)

Images is a nonliteral dance revealing the visual designs and dynamics produced by bodies moving through space. The visual effect of groups of bodies, the designs they make as a group, the designs made by individuals of the group, and the effect of groups of bodies on individual bodies passing in space and superimposing themselves on one another as they move are the elements explored in this dance. The dance is in 8 sections and uses a total of 6 dancers. A videotape of the dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina at Greensboro.

377. AMOS, Lunde Williams. *Health knowledge and interests of students at Guilford Technical Institute, Jamestown, North Carolina*. M.Ed. in Health Education, 1973. 110 p. (M. K. Solleder)

Health knowledge and interests of students at GTI were surveyed. Daytime students ($N=306$) enrolled in 2-yr. associate degree programs and in 1-yr. vocational programs ($N=108$) comprised the sample. A background fact sheet, the Leach 1969 revision of the Kilander Health Knowledge Test, and a 14-area interest inventory served as data-gathering instruments. Results were: (1) the median knowledge score of the total student group was 64 compared to the Kilander norm of 70 for college freshmen; (2) students in the 2-yr. medical programs—dental hygiene and registered nursing—had a median score of 76; all other subjects scored below national norm; (3) weaknesses in health knowledge were in community health, personal health, and stimulants and depressants; strengths were in first aid and communicable diseases; (4) older, married, women students possessed greater health knowledge than younger, single, male students; (5) interest was expressed in learning more about all 14 health areas; (6) school instruction was reported to be the major source of health information followed by the media and, then, the family and friends; (7) school instruction seemed to be effective in promoting health knowledge.

378. BAILEY, Elaine M. *The effect of delayed knowledge of results on the performance of a dart throwing skill*. M.S. in Physical Education, 1972. 91 p. (G. M. Hennis)

Subjects were women students ($N=45$) randomly selected from the fresh. class at UNC-G and then randomly assigned to 1 of 3 groups. Each group contained 15 Ss. Group 1 received knowledge of results immediately after a response and then waited approximately 18 sec. before initiating the next response; group 2 received knowledge of results 10 sec. before initiating the next response; group 3 received knowledge of results 15 sec. after a response and then waited approximately 5 sec. before initiating the next response. All Ss practiced for 4 consecutive days. Each S threw 50 darts/day for a total of 200 trials. Results of a one-way ANOVA indicated $p > .05$ among the 3 groups on the basis of total group scores as well as the 1st, 2nd, and 3rd day practice scores of each group. Immediate knowledge of results groups was superior to the group with a delay of knowledge of results on the 4th day practice scores. On the basis of the overall scores it was concluded that delayed knowledge of results did not affect the performance of the dart throwing skill designed for this study.

379. BANNISTER, Gary Frederick. *The world of sport as viewed through selected sports literature*. M.Ed., 1972. 132 p. (C. Ulrich)

Nonfiction paperback sports books ($N=25$) were selected to represent a variety of sports, to provide a sample of both biographical/autobiographical and nonbiographical material, and were restricted to post 1966 publication dates. The concepts identified and discussed included: Sport and Fitness, Aesthetic Feelings in Sport, Individuals in Sport, "Winning" in Sport, Freedom and Exploitation in Sport, Cooperation and Competition in Sport, Discrimination in Sport, and Current Trends and Issues in Sport. The literature was evaluated in terms of its worth in the study of sport and its value as source materials for physical education theory and activity courses.

380. BECK, Bonnie A. *A comparative study of the feminine role concept of undergraduate and graduate women majoring in the Department of Physical Education and the School of Home Economics at The University of North Carolina at Greensboro*. M.S. in Physical Education, 1971. 99 p. (L. C. Umstead)

The feminine role concept held by fresh, sr., and graduate women ($N = 72$) was measured in terms of "self-perception," "ideal woman," and "man's ideal woman" using the Inventory of feminine values. Conclusions were: (1) respondents majoring in physical education and home economics do not differ significantly with respect to their concept of the feminine role; (2) fresh are more "intrafamily-oriented" in their "self-perception" and "ideal woman" concepts of the feminine role than are sr. and graduate respondents; (3) sr. view their "ideal woman" and "self-perception" as similar, whereas, graduate respondents view their "ideal woman" as less "extrafamily-oriented" than their "self-perception"; (4) all Ss, regardless of class or department, indicate that their concept of "man's ideal woman" is strongly "intrafamily-oriented."

381. BESNER, Patricia R. *Badminton skill tests for the smash and overhead drop shot*. M.S. in Physical Education, 1972. 98 p. (R. McGee)

The tests were administered to 45 women Ss during the 12th wk. of a 14-wk. instructional unit in beginning badminton. A one-way ANOVA was calculated to determine differences between the performances of the 3 groups on the tests. No significant differences were found. Weak interjudge coefficients of correlation made the findings on validity for both tests questionable. Recording methods for both tests were highly objective. The coefficient of validity for the smash test was weak leaving question as to whether the test really measured the ability to smash. The coefficient of validity for the overhead drop shot test was also extremely low suggesting that the test probably did not measure the ability to perform the overhead drop shot. The coefficient of reliability for the smash test was weak leaving question as to whether the test consistently measured skill. The coefficient of reliability for the overhead drop shot was weak leaving question as to whether the test consistently measured the skill.

382. CHESLA, Lucy Katherine. *The development of an objective, reliable and valid tool for the systematic description of selected teacher behavior evident in the teaching of the cradle in lacrosse to beginners*. M.S. in Physical Education, 1972. 149 p. (K. R. Barrett)

The tool constructed was a category system, the basis of which stemmed from examining 2 ideas relevant to the teaching of physical skills to beginners: the type of response elicited by the teacher, and the components that are involved in formulating a PE lesson that emphasized the teaching of the cradle in lacrosse to beginners. The category system contained 12 categories and was divided into 2 parts, SPECIFIC and NONSPECIFIC. The SPECIFIC part identified those teacher behaviors that were observed in which no opportunities were allowed to the students to make behavioral decisions. The NONSPECIFIC part identified those teacher behaviors observed in which choice was offered to the students to make behavioral decisions. Eleven of the 12 categories were common to both parts of the system. Observation codings from prepared videotapes of 3 experienced teachers teaching the cradle to beginners served as data for estimating objectivity, reliability, and construct validity of the category system. The results showed $r = .90$ at the .05 level of confidence which proved the category system as an acceptable tool.

383. COOK, William H., Jr. *A survey of and proposals for the teaching of individual sports in the four-A high schools of North Carolina*. M.Ed., 1972. 84 p. (R. McGee)

Physical education directors ($N = 78$) in 39 schools participated in the questionnaire survey. The educators agreed on the importance of leisure sports. Most, however, were not attempting to emphasize a physical education program of leisure through individual sports. Results revealed that of 14 individual sports for girls only 4 were taught in 50% or more of the schools. Concerning individual sports for boys, 7 of 14 were taught in 50% or more of the schools. In girls' PE classes, team sports were taught from 1 to 2 wk. longer than individual sports; the teaching of team sports in boys' classes was .5 to 1.5 wk. longer than individual sports.

384. DAVIS, William Eugene. *A study to determine the best floor locations for obtaining rebounds of basketball jump shots from selected floor areas*. M.Ed., 1973. 43 p. (F. Pleasants, Jr.)

Varsity basketball players ($N = 10$) at High Point College shot a sufficient number of jump shots to miss 10 attempts from each of 5 shooting areas. Five hundred total misses were observed to rebound into 5 equal angle sectors. χ^2 was utilized to treat the data statistically. The results indicated $p = .001$ for 3 of the 5 individual areas and for all of the areas treated together. The other 2 individual areas had $p = .01$. The following conclusions are offered: (1) observed rebound location frequencies differ from expected rebound location frequencies; (2) frequencies differ according to shot position; (3) on shots

taken from areas adjacent to the baseline the similar area opposite the shooter is a likely rebound spot, and (4) on shots taken from straight in front of the basket the lane area is a likely rebound spot.

385. DICKIEY, Wanda Lee. *Silver apples of the moon*. M.F.A. in Dance, 1972. (V. Moonaw.) This is a dance for 6 girls based upon a reflection of the choreographer's experiences and opinion of conflicts that appear in contemporary life. The music was "Silver Apples of the Moon" (1967) by Morton Subotnick, an electronic piece the composer was commissioned to do for a recording. The choreographer hopes that the dance was successful in that each person found something different in it, his/her own feelings and responses based upon his/her own perception of the motion, time, and spatial shape of this dance. A 16-mm motion picture film of the dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina at Greensboro.

386. DONAHUE, Janet Ann. *The effect of dynamic balance training on reading readiness of selected kindergarten children*. M.S. in Physical Education, 1971. 113 p. (K. R. Barrett)

Ss (N = 28) were kindergarten children enrolled in 2 classes in the First Presbyterian Church Kindergarten who were assigned at random to exp. or control groups. All children were pretested on 4 subtests of Form A of the *Metropolitan Readiness Tests* and a Balance Beam Test specifically designed for this study. Following the completion of the dynamic balance training, all Ss were posttested on 4 subtests of Form B of the *Metropolitan Readiness Tests* and the Balance Beam Test. Results indicated $p < .05$ between forward, backward, or total beam walking and reading readiness. The Ss in the exp. group improved significantly more than the control Ss in forward, backward, and total beam walking. The resulting F was $p < .05$ which indicated that the dynamic balance training had no effect on reading readiness.

387. DUNN, Betty Lou. *The effects of isometric conditioning on accuracy in archery*. M.S. in Physical Education, 1973. 79 p. (G. M. Hennis)

Ss (N = 24) all with previous experience in archery, were measured initially as to shoulder abduction strength, forearm and shoulder flexion strength, horizontal shoulder and forearm flexion strength, bow arm and shoulder extension strength, archery scores, and the number of hits scored for a Jr. Columbia Round. Ss were then grouped by a rough ranking according to the 4 strength measures and then assigned to exp. and control groups. The 2 groups were equated initially in terms of strength. The cable tensionometer was used as the measuring instrument for all strength tests. The exp. group was then given a program of isometric exercises designed to increase arm and shoulder girdle strength. The program consisted of 4 6-sec. bouts of isometric contractions with 4 repetitions of each exercise daily for 15 days. The groups were then retested on strength measures and shooting ability. It was concluded from the findings that a short-term program of isometric conditioning exercises, like the one used in this study, was not effective in producing more significant strength gains or a more significant increase in shooting accuracy among college women experiencing the program than those who did not.

388. FFESTA, Anita Marie. *Just to Dance*. M.F.A. in Dance, 1972. (V. Moonaw.)

"Just to Dance" is a dance for 5 women and 3 men choreographed in sections. The dance has a lyrical, flowing quality, which is reinforced by the music, "The Lady and the Unicorn," by John Sanborn. A videotape of the dance is available for consultation at the Walter Clinton Jackson Library at The University of North Carolina at Greensboro.

389. FLYNN, Shirley Katherine. *An analysis of the recreational behavior and personality characteristics of a select group of college women who exhibited atypical social behavior*. Ed.D., 1972. 17 p. (G. Hennis)

During the 1970-71 academic year, UNC-G women students (N = 37) who were known to have exhibited atypical social behavior as defined by campus social regulations, particularly those involving residence hall policies were selected. They were divided into 4 subgroups consisting of drug, alcohol, residence hall security, and violation procedure violations. Each individual was administered the Zeigler instrument, "How Do You Rate Yourself Recreationally," and the CPI. A revised Zeigler instrument was mailed to the Ss which yielded a 100% return. A one way ANOVA, the Scheffé test, and r coefficients were used to analyze the data. The results indicated that the Zeigler and Flynn instruments do not demand the same answers. It is the belief of the investigator, on the basis of the item by item analysis of both instruments, that the revision allows for a clearer picture of recreational behavior. It can be concluded from either instrument that the group used for this study did not participate actively in physical recreation. When they did participate, the activities chosen were dual or individual in nature. As a group they were more interested in creative/aesthetic recreation. The personality traits of the subjects differed significantly from the norms established by the CPI. The differences indicated $D = .05$ in 13 of the 18 CPI variables.

110 UNIVERSITY OF NORTH CAROLINA, GREENSBORO

It can be said the subjects used for this study did not possess those qualities that would enable them to be socially mature and responsible individuals.

390. GROFF, Donald Lee. *The effect of attitude toward preperformance exercise on fifty-yard dash time*. M.S. in Physical Education, 1972. 48 p. (F. Pleasants, Jr.)

Ninth grade male PE students ($N = 91$) served as subjects. Their attitudes toward preperformance exercises were determined by the Smith-Bowynowski Attitude Inventory. Ss were classified as having favorable, unfavorable, or undecided attitudes for two preperformance conditions, warmup and no warmup. Each S ran the 50-yd. dash under each preperformance condition. The results showed the groups with favorable and undecided attitudes had significantly better dash times. These 2 groups also performed significantly better when they were allowed to warm up.

391. GUSTAFSON, Sandra Elizabeth. *A choreographic experiment with mixed means for the purpose of communication through the act of theatre*. Ed.D., 1972. 47 p. (V. Moomaw)

The experiment was entitled *Rural Route* and was essentially a long dance drama about an old farmer, his dreams, and his reflections on life. It involved writing the script, choreographing the dances, designing the set, designing the costumes, planning the lighting requirements and special effects to be employed, and directing all aspects of the production. The ideas to be communicated were concerned with the human condition and the nature of the existence of man in his world. The choreographer believes *Rural Route* to be a work of art because it communicated beyond the personal statement of the choreographer. It has educational implications in the designing of new courses in dance choreography.

392. HIGGINS, Charles Roger. *An analysis of selected mechanical factors that contribute to vertical jumping height of four basketball players*. Ed.D., 1971. 100 p. (G. M. Hennis)

This cinematographical investigation included an analysis of the angular measurements of the elbow, shoulder, hip, knee, ankle, and body lean of 4 Ss. In addition, the velocities of the arm movement, hip extension, knee extension, and plantar flexion were investigated as was the sequential order of the position, velocity, and acceleration of body parts during the selected jumps. Obtained data revealed that: (1) the relationship of the arm position, velocity, and acceleration to hip and knee extension seem to be important to performing the vertical jump; (2) increasing the range of arm motion would appear to be conducive to attaining maximum height during the jump; and (3) the point of takeoff is the point where the greatest number of similar mechanical factors not conducive to maximum jumping performance occur.

393. HOWELLS, Roberta Ann. *The effect of lateral foot placement relative to hip width on the sprint start for women*. Ed.D., 1972. 73 p. (R. McGee)

SHS female track athletes ($N = 16$) participated in a series of 9 training sessions and 1 testing session. Each S ran six 50-yd. sprints, 2 from each of the following lateral foot placements: narrow, medium, and wide. The times for the 2 sprints from each placement were averaged and considered as the Ss score. Data were statistically analyzed by ANOVA; level of confidence was set at .05. Results showed no difference between 3 lateral foot placements at a 5 and 25-yd. distance. At a 50-yd. distance the use of the narrow and medium lateral foot placements resulted in faster time elapsed than the use of the wide lateral foot placement. The hypothesis that there would be no difference in the order of trials run was accepted. The hypothesis that there would be no difference because of hip width classification from each of the 3 lateral foot placements at the 5-yd., 25-yd., and 50-yd. marks was rejected.

394. KARPS, Carol Ann. *A study of the relationship of selected physical strength factors to success in executing a quality overhead pass in volleyball for seventh grade girls*. M.S. in Physical Education, 1973. 53 p. (F. Pleasants, Jr.)

Sixty-seven 7th grade girls served as Ss. Physical strength factors included: wrist flexion, index finger extension, middle finger extension, thumb adduction, elbow extension, and shoulder flexion. Both right and left sides of the body were measured utilizing a cable tensiometer. A slight degree of relationship was found between right and left elbow extension strengths and the quality execution of the overhead volleyball pass. Index finger extension, middle finger extension, thumb adduction, wrist flexion, and shoulder flexion were not significantly related to the quality execution of the overhead pass.

395. LEKKI, Gloria Ann. *Hungarian wedding*. M.F.A. in Dance, 1972. 22 p. (V. Moomaw)

"Hungarian Wedding" is a dance, choreographed in 4 sections, in which traditional folk dance step patterns in contemporary manner are adapted for theatre. Solemn ceremonial moments of a Hungarian wedding are contrasted with joyful moments of celebration. The folk dance materials are combined with

other movements to create an atmosphere of the wedding ceremony. Dancers relate to this situation rather than to other dancers. A videotape of this dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina, Greensboro.

396. LISTER, Christine Janet. *Medieval modes*. M.F.A. in Dance, 1972. (L. Andreasen)

The primary intention of the choreographer was to contrast 2 basic modes of existence, religion and secularism by juxtaposing them. In general, "Medieval Modes" is a dance of mood rather than of story; the choreographer's intention was to convey her feeling about a certain period of history without creating characterizations or plot. A videotape of the dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina, Greensboro.

397. MCGILLIARD, Kathleen Lynette (Coffin). *Be as God?* M.F.A. in Dance, 1972. (L. Andreasen)

The choreographic work developed a communicative theater piece by the process of artistically uniting dance and the written word. It was found that the combination of these 2 aspects is a valuable means of expression. However, dance could never replace verbal expression, even though it offers intensity in areas where the written word does not totally suffice. A videotape of the dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina, Greensboro.

398. PHILLIPS, Daniel Alvord. *The transposition of literary and rhetorical constructs to dance theory and choreography*. Ed.D., 1973. 175 p. (V. Moomaw)

The heuristic study superimposed 250 constructs, such as *metaphor*, on dance theory to see if they described the same or similar processes or techniques in dance. Four compatible theories were used as a framework for conceiving the study: Langer, Sheets, Ellfeldt-Metheny, and Gendlin. Each construct was stated first as it applied to literature or rhetoric; then abstracted enough in terminology so that it would apply to literature and rhetoric and other media as well; then this abstracted statement was applied to the indicated area of dance—*aesthetics of dance*, *techniques of choreography*, or *theory of choreography*. Professional literature on the constructs and the movement-meaning relationship was used to support the philosophical developments and conclusions. Where pertinent, Labanotation and pantomimic descriptions were illustrated. It was concluded that literature and rhetorical constructs were significant in describing similar processes in dance. The results of the study were: the majority of the figures transposed described processes, ideas, or techniques, already known in dance textbooks; 5 constructs emerged as philosophically interesting, that it was speculated a complete theory could be based on any 1 of them. They were *epiphany*, *diaphany*, *enthymeme*, *imagery*, and *apostrophe*. There was a startling similarity of the 2 media, poetry and dance—it was recommended that further reflection and development would be warranted in applying the constructs to other media as well; and the use of selected constructs as dance terminology might enrich the dance field.

399. PRITCHETT, Doris Davis. *Interchange*. M.F.A. in Dance, 1972. (V. Moomaw)

Changing from floor patterns to body designs based on the choreographer's name, Doris, signed in script, a scheme using elements of dance was devised to the music, "The Winter Consort" by Paul Winter and group. This scheme was continued in a passacaglia form. The selection of these movement ideas in a scheme is an intriguing and challenging choreographic process. A videotape of this dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina, Greensboro.

400. REESE, Carol. *A cinematographical analysis of two selected methods of drawing the bow*. M.S. in Physical Education, 1973. 59 p. (F. Pleasants, Jr.)

The length of the hold at the anchor position for the 2 Ss who used their back muscles was longer than the archer using the arm pull. The draw wt. of the bow had no influence. The angle of the forearm of the drawing arm to the shaft of the arrow seemed to be related to the length of the 3rd (ring) finger of the Ss drawing hand. The bow movement in the horizontal plane after release was influenced by the alignment of the bow limbs to the arrow shaft prior to release as well as by string hand action at release.

401. SISLEY, Becky Lynn. *Measurement of attitudes of women coaches toward the conduct of intercollegiate athletics for women*. Ed.D., 1972. 192 p. (R. McGee)

The investigator devised 100 situation-response items to represent 13 areas of an attitude scale: place of athletics in education and physical education; leadership; financing; public relations; general philosophy; ethics; methods of coaching; team selection; scheduling of events; standards and eligibility; rules and officials; health and safety; and equipment and facilities. Each item contained a brief description of a

112 UNIVERSITY OF NORTH CAROLINA, GREENSBORO

situation and 5 alternative responses representing different degrees of attitude toward the situation. Content validity was assumed because of the establishment of areas and subareas and because of the item-value ratings by 9 expert judges. The scale was administered to women coaches at 75 randomly selected institutions which were charter members of the AIAW. Of the returned 246 scales, 66% had each item answered with 1 of the alternative responses. The data from these 163 scales served as the basis for reliability computation. The reliability of .597 was computed by employing the Spearman-Brown prophecy formula to the Pearson product-moment method of r . The scores of the women coaches on the scale appeared to indicate very desirable attitudes toward the conduct of intercollegiate athletics for women. The following conclusions are stated: this attitude scale is a valid measure of the attitudes of women coaches toward the conduct of intercollegiate athletics for women and this attitude scale is not reliable enough to be used for interpretive purposes.

402. STRAUSBERGER, Janet G. *Women's basketball rule infringements in seasonal and national tournament play*. M.S. in Physical Education, 1972. 82 p. (P. Berlin)

A checklist to record rule infringements as they occurred during play was devised to facilitate study of the types and frequencies of infractions. One hundred and ten games of 18 colleges/universities were charted during the 1971-72 season by trained statisticians. Ten games at the First DGWS National Intercollegiate Basketball Championship were also charted. In all, 103 teams took part in the investigation. A significant difference was found between violations in regular season and national tournament play. There was little difference found in the frequency of infringements during different quarters or under conditions of different point spreads—greater or less than 6. There appeared to be a need for better use of communication techniques by officials and more standardization of rule interpretations. The study also pointed out that the overall quality of officiating was not equivalent although all officials involved in the inquiry held national ratings. Implications are for improved methods of training officials.

403. STUBBS, Carolyn Cardwell. *Interplay*. M.F.A. in Dance, 1972. (V. Moomaw)

"Interplay" is a kinetic dance which emphasizes and projects to the viewers different energy levels, line design, spatial relationships, and motion. The central idea of the dance is based upon the interplay of the 2 main kinetic themes—abrupt angular motions and flowing circular motions. Different aspects of the 2 basic themes are discovered as they are manipulated, contrasted, combined, and energized at different levels and tempos. The effectiveness of the spatial relationships requires the usage of 5 dancers. The music, Anton Webern's "Opus 7: Four Pieces for Violin and Piano" and "Opus 6: Six Pieces for Orchestra," acts as a background for the movement themes. The motional characteristics of particular segments of the dance were designed to project an earnestness, but on the whole, the viewer is free to create his/her own mental and emotional images from the movement material. An 8-mm. motion picture film of the dance is available for consultation at the Walter Clinton Jackson Library, the University of North Carolina, Greensboro.

404. TOLLEY, Charles Michael. *The effect of selected preperformance conditions on jump shooting accuracy*. M.Ed., 1972. 41 p. (E. Pleasants, Jr.)

Three preperformance exercise conditions were selected to test 24 male Ss. Related preperformance were found to be significantly better than unrelated preperformance. There was no significant difference found between no preperformance and unrelated preperformance.

405. WEIBLEN, Joyce H. *Game rules and morality*. Ed.D., 1972. 81 p. (C. Ulrich)

This study investigated the premise that game rules can be used as instruments for teaching morality. Gossin's philosophical method of inquiry was utilized. Concepts which emerged in the study follow: That all cultures have games and systems of morality of which rules are an essential part. That game rules and moral rules are not philosophically congruent in either the play domain or the real world. That moral rules are analogous to implicit game rules, that morality is analogous to the "spirit of the game," and that official game rules are congruent with real life laws. Although the official rules were not found to be the instruments through which games could be used to teach morality, games do contain moral elements in the form of implicit rules. It was concluded that games could be instruments for the teaching of morality.

406. WHITLEY, Thomas Monroe. *The cardiac training effect of selected college men as measured by three heart rate intensity levels based on resting and maximum heart rates*. Ed.D., 1972. 121 p. (R. McGee)

The resting HR of 12 college males was obtained by attaching electrodes to the manubrium sterni and monitoring HR after resting for 30 min. in a supine position. A max HR was obtained by monitoring

the HR as each S ran on a treadmill at 7 mph and 0% grade. The speed remained constant but the grade increased 2½% after each minute of exercise until exhaustion. From the resting—max HR range, the 50, 60, and 70% intensity levels were determined. Ss were randomly assigned to 3 groups and exercised on a treadmill at the 50% HR intensity level for 2 wk. at which time ANOVA for resting HR ascertained the groups to be equated. Then, group 1 exercised at the 50% intensity level for 6 wk. and showed no significant difference when ANOVA on resting HR was calculated. Group 2 trained for 2 wk. at 50% and 4 wk. at 60% levels. ANOVA revealed $p < .01$ difference. Group 3 exercised for 2 wk. at 50%, 2 wk. at 60% and 2 wk. at 70% intensity levels. Results indicated $p = .01$. These data suggest that the critical threshold where "training effect" occurs is approximately 60% between the resting and maximum HR. The second criterion used was the change in the exercise tolerance level while the HR intensity remained the same. This work tolerance reflected the time needed for members of a group to accustom themselves to exercise.

407. ZION, Gayle Ann. *An analysis of the whip kick used in swimming competitive breaststroke*. M.Ed., 1972. 113 p. (E. Pleasants, Jr.)

A film of the angles at the ankle, knee, and hip, and the body angle in the water; the time for each phase of the kick; the calculated velocity of the horizontal body movement during each phase; the relative positions of the feet, lower legs, knees, thighs, and hips observed in several positions during the kick; and a kicking power test were used to analyze Ss (N = 6) kick. Analysis revealed that while some of the same angles were best suited to the kicking styles of some Ss, different angles facilitated efficient movement for others. No one set of angular measurements was the same for all Ss. When considered as a group, many of the swimmers with a higher velocity of body movement also had slower kicking times than those with lower velocities. Individual kicking times were more inconsistent in relationship to respective velocities. Those Ss with higher velocities also had greater knee and hip extension during the glide, kept their feet closer to the surface of the water, and held their bodies at a slight angle in the water.

Kent State University, Kent, Ohio

(M. C. Resick)

408. BJURSTROM, Larry A. *The relationship of selected serum nonprotein nitrogen parameters and the onset of physiological fatigue in man*. Ph.D. in Physical Education, 1973. 131 p. (L. Golding)
409. BROWN, Janice K. *The development of prediction equations of the percent of body fat in three female populations*. M.A. in Physical Education, 1973. 145 p. (L. Golding)
410. DAY, William C. *Relationship of maximal oxygen uptake and endurance capacity in endurance trained and non endurance trained subjects*. Ph.D. in Physical Education, 1973. 88 p. (P. M. Ribisl)
411. EISENMAN, Patricia A. *The effect of age on training in girls and women*. Ph.D. in Physical Education, 1973. 147 p. (L. Golding)
412. HOYT, Janet M. *A motor ability and skill level comparison of the low, average, and highly skilled synchronized swimmers*. M.A. in Physical Education, 1973. 49 p. (P. M. Ribisl)
413. MacFARLAND, Robert L. *Effects of a reduced oxygen mixture and vigorous exercise on altitude acclimatization*. Ph.D. in Physical Education, 1973. 132 p. (L. Golding)
414. MacKENZIE, Susan A. *The removal of hair by electrolysis*. M.A. in Health Education, 1973. 86 p. (G. R. Knotts)
415. MANGIUS, Kermit A. *Effect of task difficulty on performance in competitive and noncompetitive situations*. M.A. in Physical Education, 1973. 71 p. (G. Roberts)
416. PRESTON, David J. *An electromyographic analysis of the vastus medialis during isometric and isotonic strength development routines*. M.A. in Physical Education, 1973. 69 p. (R. R. Box)

114 KENT STATE UNIVERSITY and THE OHIO STATE UNIVERSITY

417. PRICHARD, Paula B. *Effect of level of aspiration and achievement motivation on the performance of girls interscholastic basketball teams*. M.A. in Physical Education, 1973. 97 p. (G. Roberts)
418. TUCKER, Kista R. *The choreography, direction, and production of an original dance-drama, the abeyant sons of man*. M.A. in Physical Education, 1973. 80 p. (B. L. Seidel)
419. WALLACE, Stephen A. *A comparison of learning and performance on a slow and ballistic timing task*. M.A. in Physical Education, 1973. 90 p. (K. L. DeCrew and G. Roberts)

The Ohio State University, Columbus, Ohio

(M. Mordy)

420. ADEDEJI, John A. *Physical education and nationbuilding in Nigeria*. Ph.D. in Physical Education, 1972.
421. BARNETT, Clarence R. *College athletics and physical education in Ohio during the depression*. Ph.D. in Physical Education, 1972.
422. BEVERIDGE, Sandy K. *The relationship among motor creativity, movement satisfaction and the utilization of certain movement factors of second grade children*. Ph.D. in Physical Education, 1973.
423. BUCKLES, Eddie. *A history of physical education and athletics at Alcorn Agricultural and Mechanical College*. Ph.D. in Physical Education, 1972.
- Alcorn A. and M. College, the oldest predominately Negro land-grant college in the U.S., had its beginning in 1830 as Oakland College, a Presbyterian school for the education of white males. The school closed at the beginning of the Civil War and, upon failing to reopen after the war, was sold to the state for the education of Negroes. Alcorn is listed among the few black colleges to offer courses in PE. The required PE department was created in 1928 and continues. Unsupervised by any particular faculty instructor, games and sports were played at Alcorn as early as 1875. A broad intramural program organized and supervised by students exists today. The Alcorn "Braves" have a long history in athletics, participating in the SAC in football, basketball, baseball, and track. In 1962 Alcorn became a member of the NCAA and NAIA.
424. CAL, Jimmie L. *The effects of interval bench stepping on the metabolic energy mechanisms*. Ph.D. in Physical Education, 1973.
425. CAMPBELL, Mary J. *The effects of traditional and contingency management methods on performance in selected volleyball skills*. Ph.D. in Physical Education, 1973.
426. CHALOUPEK, Edward C. *The physiological effects of two maintenance programs following eight weeks of interval training*. Ph.D. in Physical Education, 1972.
427. CHAMBERS, David E. *An analysis of the professional preparation and attitudes of male secondary school coaches in selected sports in the province of Ontario*. Ph.D. in Physical Education, 1972. 146 p. (L. Hess)
- Two groups of secondary school coaches, those with PE preparation and those without, were analyzed to determine backgrounds and attitudes toward various factors included in a 63-item coaching inventory. The 2 groups, although backgrounds were widely different, responded similarly to the coaching inventory.
428. CLARK, William J. *Development and validation of a basketball potential skill test*. Ph.D. in Physical Education, 1973. 148 p. (D. K. Mathews)
- Three player success factor areas were identified. Males (N=88) were tested to develop a battery. This battery was validated by examination of subgroups and team success utilizing 250 high school players.
429. CONOVER, Darlene K. *Object preference and resulting movement behaviors of three to seven year old custodial and trainable retarded boys*. Ph.D. in Physical Education, 1973. 197 p. (W. F. Erasing)
- Retarded boys (N=11) were exposed to ball, blocks, climber, inner tube, and wagon. These objects

did evoke movement behaviors from the subjects. As a group the subjects showed no object preference, but individual subjects did show preference. Movement behaviors displayed were inactive and sedentary in nature.

430. CRANFORD, Mary L. *Blood lactate concentrations in female athletes performing various types and intensities of work*. Ph.D. in Physical Education, 1972. 91 p. (R. L. Bartels)

Blood lactate concentration, HR, VO₂, VP, and workload were measured and/or predicted as female athletes performed various types and intensities of work. Blood lactate production was found to be a better method of assessing the strenuousness of physical activity than was HR. On the basis of lactate production, women's intercollegiate basketball involves moderate to heavy work.

431. DAVIS, Charles. *An analysis of the duties performed by the administrative head of health, physical education and recreation in state supported colleges and universities in the United States*. Ph.D. in Physical Education, 1972.

432. DOHERTY, Ethel. *The effects of reducing and masking the auditory cues accompanying performance of select gross motor tasks on the performance of those tasks*. Ph.D. in Physical Education, 1972. 176 p. (M. Mordy)

Varsity tennis players (N = 18) performed under controlled, reduced, and masked sound conditions. Results showed no significant differences between sound conditions and suggest that auditory cues have a relatively unimportant effect on performance.

433. DUNN, Patricia. *An exploration of the status and future directions of graduate programs in health education in the United States*. Ph.D. in Health Education, 1972.

434. EVANS, Jane R. *A comparison of the synchronous, rhythmic motor and spontaneous rhythmic movement of educable mentally retarded and normal children*. Ph.D. in Physical Education, 1972. 243 p. (D. Morris)

Multivariate ANOVA performed on Lincoln-Oseretsky items measuring synchrony and a test of auditory motor rhythm indicated no significant difference between the performance of retarded and normal children of comparable CA. Similar responses in a nondirected situation indicated that spontaneous movement is a function of factors other than intelligence or sex.

435. FAHEY, Brian W. *Women and sport: An existential analysis*. Ph.D. in Physical Education, 1973.

436. GANDEE, Robert N. *Effect of interval training on systolic time intervals*. Ph.D. in Physical Education, 1972.

437. GONINO, Vincent J. *The history and development of Huntington Memorial Outdoor Center, Raquette Lake, New York, State University of New York College at Cortland*. Ph.D. in Physical Education, 1973.

438. GOULDING, David V. *Prediction of exercise cardiac output from resting supine stroke volume and exercise heart rate using a CO₂ rebreathing technique*. Ph.D. in Physical Education, 1972. (E. Fox and D. Mathews)

Cardiac output was measured on male subjects (N = 8) at rest and exercise using a CO₂ rebreathing technique. Measured values were compared to predicted values derived from resting supine SV and exercise HR. Relative contributions of HR and SV to cardiac output during exercise was examined.

439. GRUNDEN, R. S. *An exploration of the experiential potential of films and selected facilitating devices as factors increasing verbal expression of meaningful moments in sport*. M.A. in Physical Education, 1973. 164 p. (B. Nelson)

This investigator concluded that there does not appear to be a relationship existing between the verbalization of an experience and the recording of emotional responses to that situation. The number of subjective responses recorded appears to be related to whether or not the responder perceives sports subjectively or objectively.

440. HALL, Sydney O. *The role of physical education in the nationbuilding process in Kenya*. Ph.D. in Physical Education, 1973.

441. HARRIS, Charles D. *The effect of isometric exercise on the systolic time intervals of the cardiac cycle*. Ph.D. in Physical Education, 1972.
442. HART, Burton. *The effectiveness of the programmed instruction component in the standard first and course multimedia system adopted by the American National Red Cross*. Ph.D. in Health Education, 1972.
443. HIRSCH, Christine. *Self confrontation and the effect of focused feedback on change in expressed movement satisfaction*. Ph.D. in Physical Education, 1972. 74 p. (M. Mordy)
Investigated was the effect of level of movement cathexis and self-confrontation on change in expressed movement satisfaction of college women (N = 165). The study employed a 3x4 factorial arrangement with high average and low movement cathexis and 4 videotape self-confrontation procedures. Movement cathexis was measured by Nelson and Allen's Scale for the Appraisal of Movement Satisfaction. Following the videotape self-confrontation procedures, the discrepancy scores between the pretest and the posttest were submitted to ANOVA. The results indicated no significant difference among the self-confrontation procedures. However, among the movement cathexis levels the Newman Keuls posteriori multiple comparisons test revealed that the low movement cathexis group had a significantly different positive change ($p < .01$) from both the average and the high movement cathexis groups.
444. HODGES, Patrick B. *A study of physical education in public two year colleges in the midwest United States*. Ph.D. in Physical Education, 1973.
445. HUBER, Joseph H. *The effects of a token economy program on appropriate behavior and motor task performance of educable mentally retarded children in adapted physical education*. Ph.D. in Physical Education, 1973.
446. HUGHLEY, Catev. *Modification of teaching behaviors in physical education*. Ph.D. in Physical Education, 1973.
447. HYRIBURT, Eileen F. *The objectives of interscholastic athletics for boys in central Ohio as perceived by social publics of different community types*. Ph.D. in Physical Education, 1973.
448. JENSEN, Judith. *The development of standards for women's athletics and their influence on basketball competition in the state of New York*. Ph.D. in Physical Education, 1972. (B. Bennett)
The historical development of standards traced in this study was accompanied by a description of organizations and athletic competition occurring in the time periods investigated. Basketball, the first sport in which extensive competition occurred among women, provoked the need for controlling and guiding standards on intercollegiate basketball in New York state. National guidelines were laid down between 1891 and 1900, by 1972 procedures for high level competition had been developed and a national intercollegiate basketball championship held. Local policies of New York resembled recommendations eventually formulated into National guidelines, since several New York women were involved in the formulation of the National guidelines. Women physical educators in New York, as well as across the nation, assumed a conservative point of view regarding athletic competition until the 1960s.
449. JEPPSON, Gordon D. *An analysis of the involvement of head football coaches in the physical education professional preparation program in selected American colleges and universities*. Ph.D. in Physical Education, 1972. 180 p. (L. Hess)
Opinions were elicited from the head football coaches and the PE department chairmen as to the feasibility of having the head football coach involved in the PE professional preparation program.
450. JEREMIAH, Maryalice. *Ohio school health education study: Status of the school health instruction program in Ohio's public secondary schools*. Ph.D. in Health Education, 1973.
451. JOHNSON, Martin W. *Construction of a trunk flexion strength-endurance test for college men*. Ph.D. in Physical Education, 1972.
452. KAHS, Karol A. *The relationship of mental image to skill performance in tennis*. Ph.D. in Physical Education, 1972. 142 p. (M. Mordy)
Forehand drive of women students enrolled in beginning tennis classes was studied. A comparison was also made of mental image and skill performance to determine if they were the same or different. Findings of the study indicate a significant relationship between mental image and skill performance.

453. KEARNEY, June F. *The history of women's intercollegiate athletics in Ohio 1945-1972*. Ph.D. in Physical Education, 1973.
454. KENNEDY, Peter F. *The life and professional contributions of Robert John Herman Kiphuth to Yale and competitive swimming*. Ph.D. in Physical Education, 1973.
455. KINSEY, Collin M. *Interrelationships among anaerobic power measurements*. M.A. in Physical Education, 1973. 42 p. (D. K. Mathews)
Four power tests and 3 power calculations were intercorrelated on data obtained from 50 college men. Highest correlations were Lewis Nomogram and Dual Power Ratio, $r = .933$; physical test of man and dual power ratio, $r = .924$; and the Lewis Nomogram and the Dual Power Ratio, $r = .913$.
456. KLINZING, James E. *The metabolic energy sources as affected by interval training*. Ph.D. in Physical Education, 1972.
457. LABRECQUE, Beverly M. *An alternative to traditional athletic competition with special reference to figure skating*. Ph.D. in Physical Education, 1972. 121 p. (S. Kleinman)
An alternative model to traditional figure skating competition was designed in an attempt to construct a framework which would allow the basic premises of the counterculture to operate.
458. LEPHART, Sigmund A. *A mechanical analysis of foreward somersaulting skills in rebound tumbling*. Ph.D. in Physical Education, 1972.
459. LEWIS, Robert W. *Sport and the fiction of John Updike and Philip Roth*. Ph.D. in Physical Education, 1973.
460. LEWIS, William C. *A selection of teaching activities as course objectives for the professional physical education curriculum*. Ph.D. in Physical Education, 1972.
461. MAURER, Bruce L. *A multivariate analysis of student, faculty and administrators' attitudes toward the division of university recreation and intramural sports at the Ohio State University*. Ph.D. in Physical Education, 1972. 123 p. (M. Mordy)
A form of the semantic differential was utilized. The results indicated that the 3 groups had significantly favorable attitudes toward the program, leadership, and facility factors. University attitudes toward a new recreation building, when ranked against "other" campus constructions, were also favorable.
462. MITCHELL, Heidi C. *The use of 8-mm. film for individualized instruction of first and fourth grade children in the overarm throw and the skip*. Ph.D. in Physical Education, 1972.
463. MITCHELSON, Edward B. *An analysis of the relationship between programs of physical education and intercollegiate athletics in the CIAU*. Ph.D. in Physical Education, 1973. (L. A. Hess)
The questionnaire, opinionnaire, and interview techniques of investigation were utilized in an attempt to gain facts and opinions from the directors of athletics of the institutions competing in the CIAU regarding the formal organizational relationship between programs of PE and intercollegiate athletics.
464. MORGAN, Marcia R. *A comparison of selected personality, biographical and motivational traits among women athletes, physicians and attorneys*. Ph.D. in Physical Education, 1973.
465. PERIES, Vincent P. *Sub-maximal cardiovascular endurance of trainable mentally retarded boys*. Ph.D. in Physical Education, 1973.
466. PRATT, Robert L. *The concept of play in American physical education*. Ph.D. in Physical Education, 1973.
467. RAGG, Kerry E. *The effects of selected recovery periods during interval training upon metabolic energy sources*. Ph.D. in Physical Education, 1972.
468. RIFE, Frank N. *Modification of student teacher behavior and its effect upon pupil behavior*. Ph.D. in Physical Education, 1973.

118 THE OHIO STATE UNIVERSITY and OKLAHOMA STATE UNIVERSITY

469. SANDER, Irene S. *A submaximal cardiovascular fitness test for fourth, fifth, and sixth grade girls*. Ph.D. in Physical Education, 1972.
470. SCHLEGEL, Ronald P. *Multidimensional measurement and structure of attitudes toward smoking marijuana with prediction of marijuana use*. Ph.D. in Health Education, 1973. 187 p. (R. Kaplan)
The notion that "attitude toward smoking marijuana" is a multiplex concept was confirmed. Reliable subscales were constructed to measure 20 different attitudinal continua. Attitudes were compared to social expectancies in predicting intentions and actual use. Finally an investigation of attitude structures revealed increased complexity with progressive marijuana involvement.
471. SCHLEPPI, John. *A history of professional association football in England during the Second World War*. Ph.D. in Physical Education, 1972. (C. Mand)
Newspapers, soccer books, records of the governing bodies of soccer, selected club records based on war involvement and public records were examined. Players, newsmen, referees, club officials, and others who were part of the war scene were interviewed. The research was done in England in 1971. Soccer played a major part in English recreation during WW II with 75% to 95% of the clubs functioning each year. With sound administrative structure and almost complete public and governmental support the games continued. Only 1 yr. was needed for a postwar "transitional" period. Although modern warfare involves nearly a whole society sport develops its organization to a high point to maintain a feeling of "normalcy," maintain civilian morale by diversion and help avoid cultural shock that might result from the loss of an implanted activity.
472. SOARES, Patricia L. *An investigation of attitudes expressed toward the DGWS philosophy and standards of competition for high school girls*. Ph.D. in Physical Education, 1972. 160 p. (L. Hess)
The majority of the standards received endorsement from physical educators while 8 were disapproved.
473. SOMERVILLE, John T. *A study of beliefs held by former football players concerning their college football experience*. Ph.D. in Physical Education, 1973.
474. STROME, Stephen R. *A comparison of the academic achievement and graduation success to grant-in-aid athletes under four different prediction plans*. Ph.D. in Physical Education, 1972.
475. THOMAS, Carolyn E. *The perfect moment: An aesthetic perspective of the sport experience*. Ph.D. in Physical Education, 1972.
476. TYLER, Jo Ann. *The relationship between self-concept and motor performance of second grade children*. Ph.D. in Physical Education, 1972.
477. WALTER, Janet L. *The effects of instruction as a secondary task load on skill in an eye-hand coordination task*. Ph.D. in Physical Education, 1973.
478. YOEST, Elmer W. *Relationships between cardiovascular fitness and selected body measurements of eighth grade boys and college men*. Ph.D. in Physical Education, 1973.
479. YOUNG, Richard M. *The effects of various reinforcement contingencies on a second grade physical education class*. Ph.D. in Physical Education, 1973.
480. ZINGALE, Donald P. *A history of the involvement of American presidency in school and college physical education and sports during the twentieth century*. Ph.D. in Physical Education, 1973.

Oklahoma State University, Stillwater, Oklahoma

(A. B. Harrison)

481. ABERCROMBIE, Betty W. *A philosophical delineation of the contributions of physical education toward attaining the goals of general education*. Ed.D. in Physical Education, 1973. 114 p. (D. Coleman)

The nature of man was described in both classical and modern interpretations. The role of learning was discussed in relation to the nature of man. A definition of, and the behavioral goals of general education were presented. The contributions of physical education toward attaining these goals were critically inter-

puted. Physical education experiences designed to promote an optimal level of health, assist in the development of a healthy personality, develop moral and ethical values, and develop skills for wholesome use of leisure, can make a valuable contribution to individual abilities which are necessary to the attainment of all the behavioral goals of general education.

482. FERGUSON, Don Paul. *Reaction time comparisons and relationships by race, sex, and body type*. Ed.D. in Physical Education, 1973. 66 p. (A. B. Harrison)

Four groups of 30 Ss, black males, black females, white males, and white females were randomly selected from populations of predominantly black and white colleges. Ss were tested for simple RT, VJRT, and foot MT with a Dekan APA. ht., wt., and arm span were also taken. Black males had faster simple RT than all other groups. All blacks had faster simple RT than all whites. All males had faster simple RT than all females. There was no sign. r between simple RT and foot MT. There was a sign. r between simple RT and VJRT in all subjects. The hypothesis of a general superiority of the blacks in RT and MT was rejected.

483. GALLOWAY, Shannon Rae. *Leg strength patterns of athletes as they relate to muscle injury*. M.S. in Physical Education, 1973. 94 p. (R. Lindsey)

Male athletes ($N=80$) from 5 varsity teams at Oklahoma State University were given knee extension and flexion tests with a cable tensiometer. Information was taken from each S on number of knee and thigh injuries sustained during athletic competition. Track men and wrestlers who had been injured had a sign. greater strength imbalance in knee flexors than those not injured. The injured wrestlers also had a sign. difference in bilateral strength. For all Ss the weaker leg was injured more often than the stronger and the strength of the weak injured leg was less than the strength of the weak noninjured leg.

484. JAMBOIS, Frank L. *Investigation of present and future employment opportunities for physical education graduates in nonacademic industrial and civic professions in the Chicago area*. Ed.D. in Physical Education, 1973. 150 p. (J. Rooney)

Fifty civic and industrial leaders in Chicago were interviewed in depth concerning their views on how people trained in PE might be employed in their areas. Results indicated many potential job opportunities outside the traditional public school teaching-coaching positions.

485. MATTHEWS, Norman D. *A progressive step test for assessing the cardiorespiratory fitness of college men*. Ed.D. in Physical Education, 1973. 74 p. (A. B. Harrison)

Volunteer Ss ($N=54$) took a progressive step test consisting of stepping on a 14-in. bench for intervals of 1.5 min. at rates of 12, 15, 18, 21, 24, 27, 30, 33, 36, and 39 step/min. Rate was set by metronome beats recorded on tape. Stepping was continuous until HR reached 180 bpm. HRs were monitored by telemetry during testing but it was established that it can be reliably taken by stethoscope taped to the chest. VO_2 intake was measured (open circuit) during the last 3 workloads. The highest relationship ($r=.76$) between HR and oxygen intake was found at a stepping rate of 33/min. This test procedure offers a valid and reliable procedure for evaluating cardiorespiratory fitness of college men.

486. OLIVER, Mary Jo. *Relationships among leadership roles, attitudes toward physical activity, and physical activity skill success*. Ed.D. in Physical Education, 1973. 114 p. (R. Dodder)

Ss were students in 50 activity classes at Oklahoma State University. Attitude toward physical activity was determined by a scale constructed by the author. Fellow class members and/or teachers were designated as having "expressive" (socially supportive), "instrumental" (skilled) a combination of these, or no leadership qualities. Skill success was based on self-evaluations and teacher ratings. Results suggested that leadership roles do influence the socialization process and may aid in determining ones feelings toward PE and toward accomplishment of skill levels. The expressive teacher-leader and student leader related consistently with skill success and attitude favorableness.

487. POPE, Max H. *The effect of overload warm up on the velocity of a baseball bat swing*. M.S. in Physical Education, 1972. 31 p. (A. B. Harrison)

Ss ($N=36$) were randomly selected from the male PE majors at Oklahoma State University. Ss were randomly assigned to order of warmup. Warmup consisted of 5 swings with a regular bat (control), 5 swings with a lead weighted bat, and 5 swings with a bat with a weighted ring on it. Times of 10 bat swings following each type of warmup were measured with a Dekan APA. Ms were compared with a t ratio. There were no sign. diff. ($p > .10$) between bat velocities using the 3 different types of warmup. An r of odd vs. even swings resulted in reliabilities of timing the swing of .85, .83, and .93.

488. PRICE, Reginald Lee. *The effects of the inch master exercisor on body girth, subcutaneous fat and selected physiological variables of adult women*. Ed.D. in Physical Education, 1973. 153 p. (A. B. Harrison)

Adult females ($N=52$) were randomly divided into control and exp. groups. The exp. group participated in a 6-wk., 30-session program of exercise on the inch master. Exercises were continuous for 20 min., approximately double the dosage recommended by the manufacturers. The exp. group decreased sign. ($p<.05$) more in waist girth, thigh girth, and right lateral flexion. They increased sign. greater in spinal rotation flexibility and aerobic capacity. There were no sign. diff. in subcutaneous fat, strength, trunk extension, Schneider Index or MBC. The exp. group did not lose weight.

489. SATTLE, Thomas P. *The development of an instrument to measure handball ability of beginning level players in a physical education class*. Ed.D. in Physical Education, 1973. 121 p. (A. B. Harrison)

Eight skill test items were administered to beginning handball students ($N=102$) in classes at the Chicago Circle branch of Univ. of Illinois. Test results were correlated with results of a partial round robin tournament score based on plus points earned. The best 3- and 5-item test batteries were selected by multiple r and regression equations were developed for these batteries. The 5 most valid items (multiple $r=.92$) were the dominant overhand return, 1-min. back wall volley, 30-sec. alternate hand rally, nondominant and dominant front wall kill placement. The test battery proved to be objective and reliable as well as valid. It can be administered in 5 min. with only 1 extra court marking being required on a standard handball court.

490. WRIGHT, Melvin G. *A suggested procedure for measuring maximal oxygen debt*. Ed.D. in Physical Education, 1972. 69 p. (A. B. Harrison)

Undergraduate male volunteers ($N=40$) warmed up for 5 min. on the treadmill at 7 mph and 3% grade. This was followed by an all out run at 10 mph and at 7% grade. Recovery was monitored until O_2 intake reached 10% above resting level and O_2 debt was calculated at this time. Twenty Ss were retested for reliability. $r=.837$. M time taken to return to the 10% above resting level was 46 min. and M O_2 debt repaid at this time was 5.71 L. O_2 debts repaid at 20, 15, and 10% above resting levels fell on a straight line. If this line were projected to complete recovery it would fall at a point of 7.2 L of debt and a time of 56 min. This procedure appears to offer a valid and reliable technique for measuring O_2 debt capacity.

University of Oregon

491. ASK, Kathryn Louise. *An evaluation of some student predictors of performance in relation to research methods and statistics courses*. M.S. in Health Education, 1973. 51 p. (M. C. Hosokawa)

Utilizing the graduate students enrolled in statistics and research methods courses at the University of Oregon during the summer session of 1973, it was determined whether certain predictors could be used in projecting an individual's performance in these 2 courses. The 10 predictors of students' performance selected for analysis were: sex, concurrent vs. single enrollment in the 2 classes, preparatory courses in the area of study, mathematics background, self-evaluations by the students of their mathematics preparation for the course, reading patterns, self-evaluations by the students of lecture clarity in the classes, study load, attendance, and instructor ranking of students. It was found at $p>.05$ that no significant projections of an individual's performance in the statistics and research methods courses could be made from the 10 predictors of student performance.

492. BURDMAN, GERALD DENE M. *An analysis of attitudes of graduate rehabilitation counseling students and gerontology trainees concerning gerontology and older people*. Ph.D. in Health Education, 1973. 98 p. (R. G. Schlaadt)

The study analyzed attitudes, opinions about, and interests in gerontology and older people held by rehabilitation counseling and gerontology students throughout the United States. A survey and semantic differential attitudinal instrument was mailed to a stratified proportional sample consisting of 250 subjects. Total response was 86%. Comparisons were made between the strata on the interest and opinion data by utilizing chi-square analysis. ANOVA was applied to the attitudinal scores. Conclusions follow: the majority of the students had only recently heard of the other discipline; very little cross-curricular coursework was evidenced; the majority felt that a moderate or strong relationship existed between the two disciplines; the gerontology trainees expressed significantly more interest in specializing in counseling the elderly; an interest in and need for cross-curricular education was manifested; and all groups regarded the concept sick person significantly more negatively than average or old person. One group of rehabilitation counseling students regarded the concept old person significantly more negatively than average person.

493. **DAVIDSON, Alan Bruce.** *A consumer health misconceptions survey of juniors in selected Washington high schools.* Ph.D. in Health Education. 1973. 90 p. (R. E. Kime)

This study is to determine the amount and kind of harmful consumer health misconceptions that are held by 11th grade students in 57 public high schools in the state of Washington, and whether the prevalence of misconceptions was related to the factors of sex, level of father's education, level of mother's education, father's occupation, prior formal health education instruction, and ethnic-geographic-population stratification. The percentage of incorrect answers to the Consumer Health Opinionnaires, which comprised 85 statements, ranged from 77.60% to 9.31%. The males subscribed to more misconceptions on 10 of the 12 subcontent areas than did the females. A significant difference was found among the ethnic-geographic-populations. The head of household's occupation and the parents' education were significant factors in the prevalence of consumer health misconceptions. No significant difference exists in scores regardless of prior health classes.

494. **DICKINSON, John S.** *An annotated bibliography of historical writings related to physical education in national professional physical education journals and proceedings in North America during the last decade (January 1963-December 1972).* M.S. in Physical Education. 1973. 62 p. (B. F. McCue)

The historical writings of the following journals and proceedings were examined: American Association for Health, Physical Education, and Recreation—*Research Quarterly*, *Canadian Journal of History of Sport and Physical Education*, *Journal of the Canadian Association for Health, Physical Education and Recreation*, *Journal of Health, Physical Education and Recreation*, *Journal of Physical Education*, National College Physical Education Association for Men—*Proceedings*, *Quest*, and *The Physical Educator*. An annotation of approximately 20-60 words was made on each article. These annotations were subsequently numbered, and categorized according to their origin. An appendix was compiled, classifying the articles into 15 subject areas, and noting the reference numbers of articles pertaining to those areas. The final appendix was compiled to indicate statistically the increase in the writing of historical literature in the journals and proceedings used in the study over the time-period indicated.

495. **DOBRUNZ, Carol A.** *The history, development, and contributions of Delta Psi Kappa from 1916 to 1970.* Ph.D. in Physical Education. 1973. 173 p. (B. F. McCue)

Delta Psi Kappa is a professional fraternity for women in physical education. This narrative traced the fraternity history from its founding in 1916 at Normal College in Indianapolis to the time when Phi Delta Pi merged with Delta Psi Kappa in 1970. Special attention was given to the founding, national projects, honors and awards, publications, national conventions, and national offices in Delta Psi Kappa. Founded as an organization by 13 women, Delta Psi Kappa had grown to over 10,000 by 1970. Active chapters have existed on over 60 college and university campuses with alumnae chapters in nearly 20 cities. Sixteen leading U.S. physical educators have accepted patron or patroness status with the fraternity and 5 other women have been named honorary members. The Research Award is perhaps the best known national project, and support for the Junior League Home for Crippled Children in Nashville, Tennessee, and the making of the film "To Live Is To Move" are other noteworthy projects. The magazine publication, *The Foil*, has printed many professional articles in the field of physical education.

496. **DOCHERTY, David.** *Performance on selected motor skills following reduction of peripheral sensory feedback.* Ph.D. in Physical Education. 1973. 103 p. (J. D. Adler)

The main purpose of this study was to determine the control and accuracy of programmed movements following obstruction of peripheral sensory input. In particular, the rate of movement, distance estimation, a complex movement pattern, and force reproduction were examined. All tasks showed some decrement when performed without proprioceptive input although this was less marked for the distance estimation and force reproduction variables. Similar decrements did not occur in a control group who experienced the same test conditions with the exception that the cuff was placed on the nonperforming arm. Proprioception was, therefore, not blocked. With the exception of the force reproduction task, motor skill did not prove a significant factor in performance of the movement tasks without sensory feedback. Despite lack of peripheral sensory input subjects were able to detect errors in performing the finger location test with 71.43% probability. This finding was interpreted as supporting a "Central Feedback Loop" capable of monitoring the efferent command and detecting error without sensory mechanisms. It is also noted that although some decrement did occur following proprioceptive loss the movement patterns were reproducible and the decrement was not as great as expected. The data is interpreted as supporting a motor programming theory of the basic movement patterns but minor modifications to the program are made from proprioceptive feedback mechanisms.

497. **GOUCHEY, Roy R.** *A history of the Alberta school's athletic association*. M.S. in Physical Education, 1973. 224 p. (B. F. McCue)

498. **GRAHAM, George M.** *The effects of a microteaching laboratory on the ability of teacher trainees to teach a novel motor skill to fifth and sixth grade children*. Ph.D. in Physical Education, 1973. 138 p. (B. C. Munson)

Teacher trainees ($N = 20$) were selected from a population of students majoring in FLE education. They were divided into 4 groups ($N = 5$) based on their previous teaching experience. Two teaching behaviors, individual feedback and movement time, were chosen as dependent variables. Groups 1 and 2 focused on the utilization of individual feedback or movement time, respectively, while practice teaching to their peers in a microteaching format. Group 3, the foils, did not teach, but experienced the criterion behaviors as student subjects for their peers during microteaching. Group 4, a control, did not experience the microteaching sessions, either as teachers or as foils. Each teacher trainee then taught a criterion lesson to a group ($N = 8-10$) of 5th and/or 6th grade children. The criterion lesson was analyzed to determine the trainee's utilization of the criterion behaviors and also their effectiveness. Results revealed that: (1) boys taught by group 3 achieved a significantly greater number of successful performances on the novel motor skill ($p < .05$) than boys taught by groups 2 or 4; (2) group 1 trainees utilized individual feedback more frequently ($p < .01$) than trainees in group 2 or group 4.

499. **HOLMES, William C.** *A health food study of users and nonusers, 55 years of age and over, comparing attitudes, repression-sensitization, and personal health status*. DED, 1973. (R. E. Kime)

One purpose of this study was to gather specific information on the health food user. Another was to compare differences of 5 groups of health food users with 5 matched groups of health food nonusers, on the specified dependent variables, plus attitudes toward physicians and religiosity. Groups were matched by sex, age, and socioeconomic level, and marital status. The findings for part 1 of the study indicated that the average age of the health food user, all groups combined, was 63.52 yr.; vitamins were the health food purchased most frequently; single females in the upper socioeconomic level spent the most money per month on health foods; married males in the lower socioeconomic level said unanimously that they would spend more money on health foods if it were available. For part 2, two-way ANOVA was used to indicate if significant differences were present ($p < .05$). Differences were found on the dependent variable of personality repression-sensitization and attitudes toward physicians. Nonusers produced significantly higher scores. On the dependent variable attitudes of religiosity, users produced significantly higher scores than users.

500. **JARVIS, William Tyler.** *An analysis of the effect of a programmed instruction course about chiropractic on the knowledge and attitudes of prospective health education teachers at the University of Oregon*. Ph.D. in Health Education, 1973. 169 p. (R. E. Kime)

A programmed instruction course (PIC) objectively presenting the major issues in the controversy surrounding chiropractic, and an instrument designed to measure knowledge about and attitudes toward chiropractic were developed. Antichiropractic materials were supplied by the AMA and prochiropractic materials by 3 different chiropractic organizations. Ss ($N = 25$) participated in the PIC as an exp. group, while 17 Ss served as a control group. $P < .05$ was found in knowledge and $p > .05$ in attitudes as a result of participation in the PIC using ANOVA. Though not significant, changes in attitudes tended to become more negative toward chiropractic as a result of having participated in the PIC.

501. **MAWSON, L. Marlene.** *An analysis of the teaching patterns of the student teacher and the attitudes of the student teacher, cooperating teacher, and supervising teacher during student teaching*. Ph.D. in Physical Education, 1973. 161 p. (B. F. McCue)

An analysis of the teaching patterns and attitudes of student teachers in physical education, and an examination of supervising teachers, cooperating teachers, and student teachers attitudes toward teaching, their degree of dogmatism, and their attitudes toward each other to determine the relationship of these variables to the student teachers teaching patterns were evaluated from the group means of 31 student teachers at the University of Kansas, and their cooperating and supervising teachers. The student teachers teaching patterns were assessed by the Verbal Interaction Category System (VICS), attitudes toward teaching were determined by the Teacher Situation Reaction Test (TSRT), attitude formation and change by the Rokeach Dogmatism Scale (RDS), and attitudes between student teaching personnel by the Student Teachers' Attitude Questionnaire (STAQ), the Cooperating Teachers' Attitude Questionnaire (CTAQ), and the Supervising Teachers' Attitude Questionnaire (SpTAQ). ANOVA revealed no significant change in student

teachers teaching patterns or their teaching attitudes, and no significant difference in the attitudes between student teachers and their cooperating teachers or supervising teachers. The R of .62 between 10 attitudinal variables and student teachers teaching patterns did not yield a significant F value, therefore accurate prediction would not necessarily result from a multiple regression equation.

502. MEALY, Charles R. *An investigation of the historiography, selected bibliographic references and information storage and retrieval systems related to graduate study and research in the history of physical education*. Ph.D. in Physical Education, 1973. 95 p. (B. F. McCue)

Given the indicators of expanding interest in the area of history within the profession, professional leaders must provide their history students with the finest preparation possible. These graduate students have a need for a working familiarity with the craft of writing history. The traditional bibliographic sources for Physical Education are not adequate for the historian. Six bibliographic aids and how they may be utilized are examined: *Directory of Special Libraries and Information Centers*; *Archives*; *Bibliographic Index*; *Library of Congress Catalog*; *Books*; *Human Relations Area Files*; and the *National Union Catalog of Manuscripts Collections*. To deal with the growing abundance of periodical literature the historian in Physical Education can effectively use the following information storage and retrieval systems: Educational Resources Information Center; Retrieval System for Adapted Physical Education; Thesaurus for Health Education, Physical Education and Recreation; Information Retrieval System for the Social Science of Sport and Leisure; United Kingdom National Documentation Center for Sport, Physical Education and Recreation; Institute of Physical Education, and Microform Publications.

503. MEREDITH, Raymond G. *Arthur A. Esslinger: His life, career, and contributions to physical education*. M.S. in Physical Education, 1973. 244 p. (B. F. McCue)

The factual data for this study was collected by a series of tape-recorded interviews with Dr. Esslinger. Further interviews to interpret this information were held and recorded by note taking. To verify this information questionnaires were sent to former colleagues, students, and friends of Dr. Esslinger. Where possible interviews with these people were also held. Dr. Esslinger was born on January 14, 1905, and died on September 15, 1973. Among his significant contributions to PE were: his ability to motivate others toward professional excellence, his pursuit of personal excellence, the part he played in administering the physical training and later the physical reconditioning programs in the Army during World War II, his publications especially the textbook *Organization and Administration of Physical Education* that he coauthored with E. F. Voltmer, his leadership in various professional organizations particularly his presidency of AAHPER in 1959-1960, and his role in the development of a leading school of Health, Physical Education, and Recreation at the University of Oregon.

504. PATE, Russell R. *Harmonic analysis of running gait*. M.S. in Physical Education, 1973. 45 p. (C. F. Brubaker)

A method for the mathematical characterization of an individual's running gait was developed. Precise description was accomplished via the harmonic analysis of waveforms obtained from stroboscopic photography of 2 competitive runners. The patterns of motion in the x -direction of points on the head, hip, knee, and ankle were reconstructed using the first 7 harmonics. The square root of the SSs of each pair of harmonic coefficients was used as a figure indicative of the contribution of the particular harmonic to the total reconstruction. Data were collected over a range of running velocities. Absolute and relative magnitudes of the 7 harmonics were analyzed for consistencies, variations with velocity, and differences between individuals. Results were presented graphically. The data showed consistent patterns which were characteristic of the motion of a particular anatomical point. Several harmonics showed consistent variations with velocity and several harmonics reflected differences between the 2 Ss.

505. RADER, John W. *An analysis of the attitudes toward sex held by junior and senior health and physical education majors enrolled in colleges and universities in the state of Virginia as measured by the sex attitude inventory*. Ed.D. in Health Education, 1973. 75 p. (R. E. Kime)

Junior and senior health and physical education majors ($N=216$) in the colleges and universities in the state of Virginia were administered an Opinion Inventory. This inventory included 3 scales: Sex Attitude Inventory, Mach IV Scale, and California F Scale. The results indicate that male health and physical education majors have a more open or favorable attitude toward sex than the female health and physical education majors. The type of institution attended, state-private and the academic class, junior-senior showed no statistical significance. There were significant F values found between the Sex Attitude Inventory

and the California *F* Scale and the Sex Attitude Inventory and the Mach IV Scale. There was no significant *F* value found between the California *F* Scale and the Mach IV Scale.

506. ROBINSON, Kenneth Graham. *Self-evaluative criteria as a means of self-assessment of teacher competence: A comparative study of health education student teachers*. M.S., Health Education, 1973. 150 p. (R. G. Schlaadt)

Student health teachers from the University of Oregon and Oregon State were tested to determine the effectiveness of their 8-wk. student teaching period when based upon the competency-based evaluations. Students, teachers, and supervisors shared in the evaluative process. The college supervisor perceived the exp. health student teacher, who used competency-based self-evaluation, to be significantly more improved in teaching competence than the control health student teacher who did not use competency-based self-evaluation during the student teaching experience. There were however, significant differences between the supervising teachers, the health student teachers, and the health students teachers school students from the college supervisor's evaluations. Each member of the teaching team perceived the student teacher from a different position and set their performance standards accordingly. Competency-based evaluation can be utilized to create a common basis for discussion and each member of the teaching team can use the achievement profile to detect and illustrate the strengths and weaknesses of the health student teacher.

507. ROMANO, David G. *An analysis of ancient Greek athletic architecture and its application to a contemporary American university*. M.A. in Physical Education, 1972. 86 p. (B. F. McCue)

This thesis was concerned with a historical and aesthetic analysis of the basic elements of 5th century B.C. Greek athletic architecture and an application of the practical aspects of these basic elements to a contemporary American university. The 5th century B.C. Greek architecture which was used as the location for physical education and athletics was analyzed. A comparison was made between the aesthetic, educational, and philosophical implications regarding athletic and physical education architecture between 5th century B.C. Greece and 20th century United States. The investigator made general suggestions by which contemporary physical educators might utilize certain aspects of 5th century B.C. Greek aesthetic and architectural qualities in a modern day context.

508. SPRUSTON, Nelson. *Research reading habits of physical educators*. M.S. in Physical Education, 1973. 101 p. (R. Geser)

509. STERETT, Barry L. *A comparison of four tests of tennis ground strokes*. M.S. in Physical Education, 1973. 48 p. (J. D. Adler)

510. SUMMERS, Emory F. *Tennis ability and its relationship to seven performance tasks*. Ed.D. in Physical Education, 1973. 73 p. (J. D. Adler)

Comparison of tennis ability rank with rank on 7 performance tasks was completed for right-handed male Ss ($N=43$) at the University of Oregon. Tennis ability was determined by a round-robin tournament. The 7 performance tasks included kinesthetic memory of hand positions, movement time of a short hand and arm movement, 2 and 4 choice RT, reciprocal tapping, a movement measured for accuracy and completed in 190 msec. or less, and a unique coincident timing task which had to be completed in less than 190 msec. The completion time of 190 msec. or less prevented the S from utilizing feedback to correct movement errors. Rank difference correlations between tennis ability and timing and 2 choice RT were .377 and .350 ($p < .05$). All other correlations were insignificant. One-way ANOVA indicated no significant differences between performance of varsity, advanced, and beginning players. A multiple *R* between the tasks of timing, 2 choice RT, 4 choice RT and reciprocal tapping reached .4891 ($p < .05$), but was considered too low for computation of a multiple regression equation for use as a predictor of tennis ability. It was concluded that little, if any, relationship between tennis ability and the 7 performance tasks exists.

511. WHITE, John A. *An investigation of the relationships between the aerobic capacity of undergraduate college women and their performances on walk-run field tests of eight, ten and twelve minutes duration*. Ph.D. in Physical Education, 1973. 50 p. (E. Evonuk)

Undergraduate college women ($N=20$) participated in the practice and 2 actual trials on 8, 10, and 12 min. walk/run field tests and a max VO_2 test. The S's best scores obtained for each test were considered indicative of their best performances. The mean distances obtained for the best performances on the field tests were 1.03, 1.27, and 1.51 miles, respectively. The mean score for the best trial on the max VO_2 test was 50.6 ml/min/kg. Reliability coefficients for the 8, 10, and 12 min. runs and the max

VO2 test were .82, .83, .80, and .93. Validity coefficients were calculated by correlating the S's best score on each field test with the best score on the criterion measure, max VO2. The coefficients obtained were .35, .54, and .63, respectively. Partialling out the effect of age generally increased these coefficients slightly. Because of these low validity coefficients no attempt was made to construct regression equations for prediction.

512. WHITE, Mary Lou. *The use of videotape replay to provide knowledge of improvement in learning the fencing lunge*. D.Ed. in Physical Education, 1973. 122 p. (B. F. McCue)

The effects of videotape replay toward providing knowledge of improvement in learning the fencing lunge were studied over a period of 10 wk. Men and women college students ($N = 48$) in 2 beginning fencing classes were randomly divided into control and exp. groups and tested every 2 wk. for a total of 5 times. All Ss were taped and performance was evaluated from the tapes and recorded on a scorecard. Only those in the exp. group saw the replay while all Ss received feedback by way of the scorecards along with verbal comments from the instructor. The response curves for each group were examined, and the effects of knowledge of improvement or the lack of it on subsequent scores were analyzed. A nested design ANOVA followed by regression analysis revealed no significant differences between groups in learning the fencing lunge with or without the use of videotape replay. Improvement for all groups was statistically significant. Significant differences in the response curves for each group were found. ANOVA indicated no differences between groups receiving knowledge of improvement or knowledge of lack of improvement.

University of Oregon, Eugene, Oregon

(E. R. Reuter)

513. FREEMAN, William H. *A biographical study of William Jay Bowerman*. Ph.D. in Physical Education, 1972. 155 p. (B. F. McCue)

William Jay Bowerman spent his life in the pursuit of physical fitness and excellence in sport. Born in Portland, Oregon, on February 19, 1911, he graduated from the University of Oregon in 1934 with a degree in business administration. Active as a student in school affairs and athletics, he spent 9 highly successful years teaching and coaching at Medford, Oregon, High School, serving 1 yr. as president of the Oregon Association of Health, Physical Education, and Recreation. Coming to the University of Oregon as track coach in 1948, he developed the school into a national power, winning several NCAA titles. He was honored as president of the National Collegiate Track Coaches Association and served on the President's Council on Physical Fitness. A member of the U.S. Olympic Committee, he was proudest of 3 accomplishments: his development of a highly successful local all-comers track meet which was used as a national guideline program, his major role in the popularization of jogging in the United States, and his selection as Head Track Coach for the 1972 U.S. Olympic Team.

University of Oregon, Eugene, Oregon

(J. R. Felshin)

514. COLLINS, Catherine M. *A comparison of selected personality traits between female varsity basketball players in Catholic and public coeducational high schools in northern New Jersey*. M.Ed. in Physical Education, 1973. 62 p. (R. L. DeSchraver)

Selected personality traits, as measured by the Adjective Check List, were compared by means of t tests. The Ss ($N = 132$) were female students in 4 Catholic and 4 public high schools. The Catholic school players were higher ($p < .05$) in the traits of Dominance and Self-Confidence than the public school players. The Catholic school nonplayers were higher ($p < .05$) in the traits of Achievement, Dominance, Order, and Personal Adjustment than the public school nonplayers. The total group of players was higher ($p < .05$) in Achievement, Change, Dominance, and Self-Confidence and lower ($p < .05$) in Personal Adjustment and Self-Control than the total group of nonplayers.

515. LENNOX, James W. *The effect of isokinetic exercise on quadriceps strength and electromyographical activity in the vastus medialis muscle*. M.Ed. in Education, 1973. 61 p. (H. Weber)

An exp. and control group of 5 each performed 4 right knee extensions at 8 rpm on an isokinetic exerciser. At the same time, electromyograms were monitored for the right vastus medialis muscle. The exp. group then trained isokinetically for 6 wk, performing 3 sets of repetitions, 3 times weekly at 8 rpm. Results showed that the exp. group $p < .05$ for total strength, peak strength, and EMG area. Both groups generally showed $p < .05$ for r 's of total strength to peak strength, total strength to EMG area,

126 UNIVERSITY OF OREGON and THE PENNSYLVANIA STATE UNIVERSITY

and peak strength to EMG area. Percent scores showed $p < .05$ for r 's from the pretest to the posttest. Conclusions were that the variables could be significantly increased by the isokinetic training program and that, under the specific conditions of this study, the EMG activity will parallel an increase in strength and the relationship of EMG activity to strength does not change.

516. PRALL, Phillip J. *The validation of a versatronics oxygen consumption computer*. M.Ed. in Physical Education, December 1973. 113 p. (H. Weber)

A Versatronics Oxygen Consumption Computer (OCC) was validated against a standard open circuit method of oxygen consumption determination at low, moderate, and moderately high heart rates. The reliability of the OCC was also determined by means of 30 analyses of a gas of known composition. Significant differences, $p < .05$, were found between the 2 methods. Reliability data yielded a standard error of the mean of ± 2.17 and a percent error of ± 1.02 . It was concluded that although the OCC was not a valid instrument, it was capable of yielding reliable results.

Microcard

517. SMALL, Cathy. *A comparison of feminine role perceptions of selected college female team and individual sport varsity athletes and non-athletes for themselves and "the average woman."* M.S. in Physical Education, 1973. 118 p. (J. Felshin)

Feminine role perceptions were solicited from selected women ($N = 225$) attending 3 eastern state colleges between Spring, 1972 and Spring, 1973. The Inventory of Feminine Values, an instrument consisting of 34 value-laden statements regarding women's satisfactions, obligations, and aspirations, was employed. Ss were asked to respond to each IFV statement on a 7-point scale of agreement/disagreement under 2 consecutive conditions, i.e., as self (SP) and as the average woman (AW) would respond. The IFV measures the degree to which an individual embraces an "other-oriented" (passive) or "self-oriented" (active) feminine role concept on a numerical continuum. The study compared absolute role perceptions for each condition, the "distance" and relationship between AW and SP role concepts, and the extreme response patterns among groups. The findings supported the following: Athletes and nonathletes did not differ in total self-perceptions of the feminine role. Individual and team sport athletes expressed similar perceptions of all feminine role dimensions both for self and for the average woman. Athletes and nonathletes appeared to differ in the nature of opinions which constituted total AW perceptions; nonathletes ascribed to a greater number of extreme positions regarding elements of the feminine role than did athletes.

518. SMITH, William R. *A statistical analysis of the events which contribute to the total score for outstanding performances in the decathlon*. M.Ed. in Physical Education, 1973. 24 p. (F. D. Silks)

Multiple correlational analysis and ANOVA were performed on the event-by-event results of the best scores of 45 of the world's most outstanding decathletes who performed between 1964 and 1971. The results of 4 events—long jump, 100-m, javelin, and high jump—produced an R of .813 which met the criterion ($R > .80$). The addition of the discus results raised the R to .846; and the addition of the 1500-m results produced a 6 event R of .899. The derived multiple regression equations were presented for use. Using ANOVA it was found that the top 25% of the Ss outperformed the lowest 25% in all events but significantly ($p < .05$) in only 3—long jump, 100-m, and 400-m.

The Pennsylvania State University, University Park, Pennsylvania (B. van der Smitten)

519. ALEXANDER, Christine. *Behavioral perceptions of female tennis players*. M.S. in Physical Education, 1973. 84 p. (D. V. Harris)

The Gough Adjective Check List was administered to varsity female tennis players ($N = 57$) from 5 eastern colleges in an attempt to distinguish between those who preferred singles and those who preferred doubles on the basis of perceived behavioral characteristics. As social beings and as competitors, the Mann-Whitney U Test indicated no significant differences in the perceived behavioral characteristics of singles and doubles players. However, when comparing the perceptions that singles and doubles players had of each other utilizing the Wilcoxon Matched-Pairs Signed-Ranks Test, significant differences were found. In general, the perceptions that singles players had of doubles players were less favorable than their own competitive-self description; both groups perceived the opposite group as high on the variables of abasement, deference, and succorance and low on the factors of dominance and self-confidence. Although the singles and doubles players perceived each other in noncompetitive terms, when the singles players viewed themselves as doubles players and when the doubles players viewed themselves as singles players, both groups saw themselves as being highly competitive.

520. BERRY, Christine. *Effects of a resident outdoor school experience upon behavior of selected fifth grade students*. M.S. in Recreation and Parks, 1973. 70 p. (B. van der Smussen)

This study assessed the effects of a week at resident outdoor school, and 3 different educational methods employed by classroom teachers prior to the resident experience, upon the behavior of 15 fifth grade students who manifested disturbed behavior in the performance of their every day classroom activities. The Devereux Elementary School Behavior Rating Scale and the Peterson Quay Behavior Problem Checklist were used as pre- and posttest measures to assess areas and degrees of behavioral difficulty before and after the exp. program. Each of the 3 lead up programs had a different emphasis: (1) outdoor field experiences, (2) multimedia exposures, and (3) independent workbook investigations. It was concluded that in some instances independence, attention span, critical thinking, rapport, maturity, and academic worry can be positively influenced by a resident outdoor school experience. The differences in the effects of the 3 lead up programs did not appear to be very clearcut, although the data suggested that the program which emphasized multimedia exposures might be more beneficial than the other 2 approaches employed.

521. BOUTDMAN, John R. *The effects of an activity program on the social interaction of institutionalized geriatric mental patients*. M.Ed. in Recreation and Parks, 110 p. (H. M. Lundegren)

Eight female institutionalized geriatric mental patients were involved in a program of 40-min. duration 5 day/wk for a 5 wk period. Three instruments were utilized- Individual Participation Rating Form, Daily Log, and Weekly Functional-Behavioral Rating Form. Means were computed on a weekly basis for the data collected in daily and weekly observations from the Individual Participation Rating Form in order to analyze the changes which occurred in social interaction on both the individual and group levels. It was concluded that through presentation of an activity program designed to meet the functional levels of these subjects, it is possible to increase the social interaction of female geriatric mental patients, and that participation in the group process and involvement with staff and the other group members (patients) also appears to increase social interaction. The program was composed of simple, progressive activities specifically designed for this group of subjects.

522. BOWERS, Judith F. *A biomechanical comparison of the grab and conventional sprint start in competitive swimming*. M.S. in Physical Education, 1973. 83 p. (P. Cavanagh)

Collegiate female swimmers (N = 6) were filmed while performing 4 trials of each starting style. It was found that the grab start was significantly faster for all time phases involving movement on the starting block; this included total block time, as well as time from gun flash to water entry and gun flash to 10 yd. It was also found that the body orientation of the swimmers was significantly different between the 2 starting styles; the time from takeoff to water entry and takeoff to 10 yd. as well as reaction time, the velocities of the center of gravity at takeoff and water entry, and, consequently, the trajectory of the center of gravity of the body; and the horizontal distance covered in flight. It was concluded that the grab start allows the swimmer to leave the block faster without a corresponding decrement in any of the other important mechanical factors.

523. BRITTEN, Helene Ruth. *The effect of a program of sequentially planned activities on the development of balance of institutionalized moderately retarded children*. M.Ed. in Physical Education, 1973. 73 p. (H. M. Lundegren)

For a 6-wk period, retarded children (N = 27) from a residential state school participated in either a sequentially planned balance development program (Auxter), or in a general physical activities program to determine what effect the balance development program would have on the static and dynamic balance performance of the retardates. Two groups were equated according to age, sex, and IQ, and according to pretesting on Cratty's level I and II Balance Test of a 6-Category Gross-Motor Test, and a Balance Beam Walk, and were then classified as either the exp. balance group, or the control general activities group. The groups met for 24 sessions of 20 to 30 min. in duration. Posttest results indicated that participation in either a sequentially planned program of balance, or in a general physical activities program did not significantly affect the developmental balance skill of institutionalized moderately retarded children.

524. BROOKS, Christine M. *Validation of the gamma mass scanner for determination of center of gravity and moment of inertia of biological tissue*. M.S. in Physical Education, 1973. 66 p. (R. Nelson)

The calidity of the gamma mass scanner in predicting center of mass and moment of inertia of biological tissue was tested using legs of lamb. Three other standard methods, the reaction board, immersion, and pendulum methods, were used to obtain 1 or both the center of mass and moment of inertia of the legs. The results from the standard methods were compared with those from the scanner. Results indicated that the gamma mass scanner consistently predicted the mass of the legs to within a 1% error. This

128 THE PENNSYLVANIA STATE UNIVERSITY

represented a maximum difference of 15.8 gm. between the weight predicted by the scanner and weight measured on the scales. The scanner showed a maximum error of 2.1% (1.7 mm.) in prediction of center of mass and a maximum error of 4.8% for moment of inertia prediction. Seven of the 9 trials indicated that the scanner was within a 3% error for moment of inertia determination. Within the limits of this investigation it was concluded that the gamma mass scanner showed promise as a method for prediction of center of mass and moment of inertia of biological tissue and therefore warrants further investigation.

525. **CHIERA, George C.** *Role perceptions of therapeutic recreation staff members in institutions with centralized and decentralized administrative structures.* M.Ed. in Recreation and Parks, 1973. 112 p. (B. van der Smisssen)

The study encompassed 3 major profiles of perception: how professionals and nonprofessionals perceived themselves; how professionals and nonprofessionals perceived each other; and how the perceptions of professionals and nonprofessionals in the decentralized system compared to the perceptions of their counterparts in the centralized system. Two psychiatric hospitals, 1 centralized and 1 decentralized, and the 25 therapeutic recreation staff members working within the institutions participated. A forced-choice Q-sort instrument was constructed to allow assessment of perceived roles among professional and nonprofessional personnel in different types of settings. Nine functional role categories were used; the final Q-sort deck contained 64 statements. Conclusions: the extent of uniformity of role perceptions among professional and nonprofessional therapeutic recreation staff members functioning within centralized and decentralized institutional administrative structures depends upon reference to specific functional role categories; the role of the nonprofessional is perceived by the professional as similar regardless of the type of institutional administration; in both administrative structures, nonprofessionals do not tend to perceive professionals the way professionals perceive themselves; professional staff members in the 2 opposing institutional administrative structures do not perceive themselves in the same way and nonprofessional staff members in the 2 opposing institutional administrative structures perceive themselves somewhat similarly.

526. **COLDREN, Joseph A.** *Academic achievement of sophomore athletes and nonathletes at Lock Haven State College.* M.Ed. in Physical Education, 1973. 52 p. (E. A. Gross)

Forty-one athletes and 41 nonathletes from the 3 academic years 1969-1971 participated. The athletes were male students who participated in and completed 1 intercollegiate sport season during either of 2 semesters of their soph. year. The nonathletes were male students who did not participate in any intercollegiate sport during the sophomore year. The sports represented in the athlete group were football, soccer, track, baseball, tennis, and golf. The 41 athletes were matched on a 1-1 basis with 41 nonathletes on the fresh. year QPA, soph. year semester hours, and date of college matriculation. The soph. year numerical quality point average was used as the measure of academic achievement. It was concluded that participation in certain intercollegiate athletics has no detrimental effect on academic achievement of soph. male college students, and that a difference exists in the academic achievement of nonathletes between the fall and spring semesters of the soph. year at the Lock Haven State College.

527. **DEANE, Ormonde C.** *Recreation patterns of discharged psychiatric patients.* M.Ed. in Recreation and Parks, 1973. 106 p. (B. van der Smisssen)

Ten men and women, former patients (ages 20 to 55) of a state mental institution, who had been discharged from the hospital for 3 mo., but not more than 12, and who had participated in the hospital recreation program were participants in the study. Individuals were interviewed concerning recreation participation patterns before, during, and after hospitalization. A recreation resources form was completed regarding recreation areas, facilities and programs available in the participants' communities. Conclusions: recreation participation is greater during hospitalization than either before or after hospitalization; patients consider the state hospital recreation program to be a valuable part of the overall hospital experience; increase in recreation activity participation following hospitalization as compared to the prehospital period appears to have been influenced by the hospital recreation experience; the fact that similarities exist between the hospital and community recreation offerings does not necessarily mean that discharged psychiatric patients will use those community resources when they return home; and, the availability of community recreation resources appears to be less association with the posthospital recreation patterns of the former psychiatric patients than factors such as: transportation, money, friends, social stigma, group acceptance, and family situations.

528. **DELANEY, Richard.** *The observed relationship between appropriate positive and negative affective responses of psychiatric patients in recreation activities and patterns of behavior leading to social interaction within the ward environment of the hospital during nonstructured hours.* M.Ed. in Recreation and Parks, 1973. 106 p. (B. van der Smisssen)

To measure affective responses an Affective Behavioral Rating Form (ABRF) was developed and an adapted version of a Weekly Evaluation Scale (WES) was utilized. The ABRF encompassed 4 major response areas--Physical Appearance, Physical Functioning Level, Vocal Response, and Emotional Status. The WES categorized behavior leading to social interaction by Degree of Participation, Reaction to Challenges, Attitudes Displayed, Frustration Tolerance, Ability to Cooperate, Conformity to Group Norms, Observed Interaction Patterns, and General Functional Pattern. Ten ambulatory regressed male psychiatric patients, ranging in age from 21 to 60 and in hospitalization from 1 to 40 yr., residing in the North and South Units of Philadelphia State Hospital participated. Subjects were diagnosed as Schizophrenic, except for 1 diagnosed as psychotic with Syphilitic Meningo. It was concluded that an increase in appropriate positive or negative responses in the affective domain does not result in similar norms of behavior leading to social interaction within the ward environment of the hospital during nonstructured hours; affective behavior developed and demonstrated during participation in recreation activities does not carry over to behavioral transference or social interaction within the ward environment during nonstructured hours; and participation and/or social interaction occurring in a recreation program do not develop or aid in demonstrating appropriate affective behavioral responses during the recreation activity.

529. DE LONG, James A. *Satisfaction and participation by members of participatory and instructor led groups engaged in the same goal oriented activity*. M.Ed. in Recreation and Parks, 1973. 59 p. (B. van der Smitten)

Scout Troops (N = 2) were organized for the Leatherwork merit badge, 1 under participatory leadership and the other completely under instructor guidance. An observation sheet was designed to measure participation by leader dependency, group interactions, and task orientation. A Scouter Reaction Questionnaire elicited a participant's satisfaction with the activity, the activity organization, the learning experience, the different projects, the leader, and the group. Findings: members of a participatory group displayed a greater degree of task orientation than members of an instructor led group; there were no differences in participant interactions or leader dependency between groups participating in activities under the 2 leadership styles; members of a participatory led activity became more satisfied with their completed projects than did individuals in a group where projects were chosen for them; members of the instructor planned group became more satisfied with other group members than did members of the participatory group; and, members within instructor planned groups developed a decrease in task orientation as activity sessions progressed.

530. ENDERS, Don. *Ernest B. McCoy and intercollegiate athletics at The Pennsylvania State University*. M.S. in Physical Education, 58 p. (J. Lucas)

The study is an historical investigation of the 17-yr. tenure of Ernest McCoy, from 1952 to 1969, as Director of Athletics at The Pennsylvania State University. Although McCoy was also Dean of the College of Health, Physical Education, and Recreation during this time, the study deals primarily with the major significant events concerning Penn State intercollegiate athletics during McCoy's tenure and his philosophy of athletic administration. Information was gathered through personal interviews, both with McCoy and with numerous persons who served either as coaches or professional colleagues of McCoy at Penn State, and through Penn State sources in describing such significant events as the development of athletic facilities, the financing of intercollegiate athletics, the role of women's athletics at Penn State, and McCoy's leadership role in various collegiate athletic organizations.

531. FARQUHAR, Billie M. *Physical education curriculum for an alternative year-round secondary school*. M.Ed. in Physical Education, 1973. 103 p. (L. I. Magnusson)

The curriculum was designed to take advantage of the increased flexibility of the Alternative Year-Round Secondary School to provide students with a program that would meet their individual needs and interests. Goals established for the existing State College Area School District physical education programs and goals set forth by the AAHPER for a quality physical education program served as a basis for the development of the curriculum. Students enrolled in the school would be allowed to earn physical education credit in 3 different ways: selecting courses from the Catalog of Authorized Courses Maintained by the school, contracting with the physical education instructor on an individual basis, or enrolling in the existing secondary school physical education classes. Courses were developed in physical education for inclusion in the Catalog. Evaluation designed for the curriculum included 3 areas; student progress, physical education program, and student attitudes toward physical education.

532. FLEMING, M. Lynette. *A study of the metric system taught in the indoor and outdoor settings*. M.S. in Recreation and Parks, 1973. 76 p. (B van der Smitten)

130 THE PENNSYLVANIA STATE UNIVERSITY

Students ($N=7$) participated in the outdoor group and 7 in the indoor group; they were junior high low mathematics achievers. Classes met for 5 days with periods ranging from 45 min. to 1.5 hr. over 3 wk. Conclusions: the linear metric system can be taught to remedial mathematics students in a 4-day period with significant gains in knowledge by both the indoor and outdoor method; the outdoor approach, particularly the subject of area measurement, resulted in significantly higher posttest scores.

533. FLEMING, Priscilla. *The effect of play alternatives on a specific disruptive behavior in hyperkinetic trainable mentally retarded children*. M.Ed. in Recreation and Parks, 1973. 112 p. (B. van der Smissen)

Two male hyperkinetic trainable mentally retarded children, aged 6 and 8, from a special education unit participated in play sessions designed to reduce inappropriate out of seat behavior in the classroom through utilization of a model who was present both in the sessions and in the classroom. The play sessions occurred 3 day/wk for a period of 3 wk. Data were collected through the classroom log, the program log, and frequency and duration rating information of out of seat behavior. Conclusions: sessions offering alternative play experiences for a period of 3 wk. are not effective in reducing frequency of out of seat behavior in the classroom; however, play sessions are effective in reducing frequency of out of seat behavior of participants during the play sessions; and sessions offering alternative play experiences for a period of 3 wk. appear to be somewhat effective in reducing duration of out of seat behavior in the classroom.

534. HALE, Bruce. *The relationships of selected personality characteristics to the background experiences of football coaches*. M.S. in Physical Education, 1973. 84 p. (D. V. Harris)

Football coaches ($N=122$) with secondary school and collegiate coaching duties completed a testing packet, while attending the annual clinic held at Penn State University in May 1973. Standardized test scores of 9 Adjective Check List (ACL) scales (dominance, intraception, affiliation, nurturance, autonomy, aggression, change, succorance, and deference) were compared to the individual coach's background experience: amount of physical education professional training; amount of liberal arts credits completed; previous military background; winning of a varsity letter in collegiate football; number and type of sports coached; and years of coaching experience to see if any significant relationships existed. The ACL scores of 32 skilled handball players (mostly academicians) were utilized for further comparison with the coaching sample population. Football coaches scored significantly higher (.05) than the control group on the nurturance scale. Football coaches who earned a varsity letter in college football scored significantly higher on the dominance and aggression scales and significantly lower on the deference scale (.05) than coaches who did not win a letter. Football coaches who coached football only scored significantly higher on the autonomy scale (.10). As hypothesized, the remaining comparisons revealed a very homogeneous overall personality profile of the coaching sample population.

535. HAYMES, Emily M. *Heat tolerance of exercising lean and heavy prepubertal girls*. Ph.D. in Physical Education, 1973. 137 p. (E. R. Buskirk)

Twelve partially acclimatized Ss, ages 9-11, walked on a treadmill in 4 different environments: 21.1, 26.7, 29.4, and 32.2°C T_{at} . Rectal temperature (T_{re}), mean skin temperature (T_{sk}), heart rate (HR), evaporative rate (E), and metabolic rate were measured during each session. 5 lean Ss had significantly greater T_{re} and ΔT_{re} at 32.2°C than the heavy Ss which indicated a greater strain on the lean Ss. Only 2 Ss, both heavy, could complete 60 min. of exercise at 32.2°C. Lean Ss had significantly higher T_{sk} at all temperatures. No significant differences in E were observed between groups, however E was greater over the thigh and upper arm among the heavy Ss. Final T_{re} was the same at 21.1 and 26.7, but significantly higher at 29.4 and 32.2°C. Metabolic rate was the same at all temperatures, but ER, T_{sk} , and E increased with increasing temperature. Compared with data on adult women, prepubertal Ss had the same critical effective temperature (26.7°C) but were less tolerant of exercise at 32.2°C T_{at} .

536. HOSTY, Karen Louise. *The carry-over effects of an instructional recreation program on the ability of trainable mentally retarded children to use a free play period*. M.Ed. in Recreation and Parks, 1973. 149 p. (B. van der Smissen)

Three boys and 1 girl, 6-7 yr. of age, attending a special education class in a public school participated in both an instructional recreation program occurring twice a week and a free play period on the school's playground once a week for a period of 5 wk. Each child was observed according to level of play, level of social interaction, and movements and use of equipment. Conclusions: recreation programs involving the practice of movement skills and activities which include the utilization of play equipment can aid the retarded child in the acquisition of movement and equipment utilization skills; acquisition of equipment

skills during an instructional program by a trainable retarded child will be transferred to a free play situation, however, the acquisition of movement skills may not necessarily be so transferred.

- 537 HUMPHREY, Fred. *An analysis of goal congruency in a diverse membership normative organization, the National Recreation and Park Association*. Ph.D. in Physical Education, 1973. 392 p. (B. van der Smuisen)

The subjects were 475 defined active members of 9 functional units (branches) of the National Recreation and Park Association. They responded to a Goal Evaluation Questionnaire composed of 58 goal statements in reference to the priority they perceived the NRPA was giving and the priority they preferred that the NRPA should give to each goal. It was concluded that goal congruency in a normative organization is essentially a function of membership in an interactive unit of the organization (functional units and geographical districts) and not a condition common to the organization as a whole; age, educational background and years in the field have minimal to no effect on the existence of goal congruency in a normative organization, and that neither Output nor Support goals have any significant dominance as a greater source of congruency in normative organizations. The Positional Change Criterion used appears to have methodological value in reference to the substantive analysis of goal congruency in normative organizations.

- 538 INFELD, John M. *Bill Jeffrey, soccer, and the Penn State athletic program: 1926-1952*. M.S. in Physical Education, 1973. 144 p. (R. Smith)

Soccer began at Penn State University as an interclass activity in 1911. The narrative shows the influence of Bill Jeffrey and other forces on the development of soccer at the University from the autumn of 1926 until the conclusion of the 1952 season. The emphasis is on Bill Jeffrey, head coach during these years, with 1 chapter devoted to the development of the total athletic program at Penn State during Jeffrey's era. Since the study is biographical in nature, the early years of Bill Jeffrey were studied as well as his post-Penn State days. Information used in the study came principally from primary sources including team records, personal files kept regarding Jeffrey, scrapbooks on Jeffrey, certain newspaper articles, Penn State University publications, two books published by Jeffrey on soccer, Board of Trustees minutes of the University, and numerous interviews.

- 539 KINYON, Charles M. *Comparison of the effectiveness of two methods of teaching the tennis serve*. M.Ed. in Physical Education, 1973. 59 p. (E. Gross)

Novice, male tennis players (N = 14) were taught to serve in the conventional manner while 14 other beginning players were taught a compact windup motion for their serve. Each subject performed 30 tennis serves at the beginning of each of 10 practice periods using the serving method assigned. During the exp. period each group was given 5 accuracy tests, 2 at the beginning, 1 in the middle, and 2 at the end of the investigation. The results of these tests were used to establish the reliability of the testing procedures, assess changes that might have taken place from the beginning to the end of the study, and analyze the differences which existed between the group performances. The results of the testing showed no advantage to teaching the nonconventional serving technique. A longer training period than 5 wk (15 practice sessions) seemed to be necessary for sufficient learning to take place so that differences in serving techniques might be more effectively evaluated.

- 540 KOEPKE, Sharon. *The effects of outward bound participation upon anxiety and self concept*. M.S. in Physical Education, 1973. 114 p. (D. V. Harris)

This study involved 33 male and 11 female participants in a Colorado Outward Bound School course held in May 1973. Tests were administered at the beginning and at the conclusion of the course. Real and ideal self-concepts were measured through Gough Adjective Check Lists, state and trait anxieties were indexed by the State-Trait Anxiety Inventory. The comparison of precourse and postcourse tests revealed that at the conclusion of the experience real self-concepts became more positive and real self-concepts more closely approached ideal self-concepts. Both state and trait anxieties decreased following participation. Low state and trait anxiety scores were found to be related to positive real self-concept measures. In the comparison between male and female participants, females exhibited higher ideal self-concepts while males displayed a smaller discrepancy between real and ideal selves. Because the direction of all changes was the same for both sexes, it was concluded that Outward Bound participation has similar effects upon male and female state anxiety, trait anxieties, real self-concept, and ideal self-concept.

- 541 LeVEAU, Barney F. *Movements of the lumbar spine during selected strengthening exercises*. Ph.D. in Physical Education, 1973. 192 p. (E. Gray and R. Nelson)

This investigation studied the movements of the lumbar vertebrae and sacrum and compared the selected lumbar parameters with different levels of abdominal strength, hip flexor muscle extensibility, and hip

extensor muscle flexibility during execution of selected abdominal strengthening exercises. Males ($N = 18$) were divided into 3 groups according to their abdominal muscle strength. Hip flexion and hip extension extensibility were measured. Lateral view roentgenographs were filmed during the 6 separate test positions of hooklying, longlying, double leg raising, hooklying sit-up, longlying sit-up, and V-sit. Eighteen lumbar measurements were extracted from the roentgenographs. An ANOVA was used to determine differences between the strength levels and the lumbar parameters. The Pearson product-moment r compared the extensibility measures with the lumbar parameters. Conclusions suggest that within the strength range studied, positions of the lumbar vertebrae and sacrum cannot be predicted on the basis of abdominal strength; hip flexor muscle tightness within the range tested does not alter the position of the lumbar curve; hip extensor muscle tightness affects the tilt of the sacrum and lumbar lordosis during the exercises; and, the longlying situp appears to be the most hazardous.

542. LOWE, Agatha G. *Some sources and effects of health related education during recovery from mastectomy*. M.S. in Physical Education, 1973. (E. Hunt)

Women ($N = 26$) who had surgery in an Eastern Pennsylvania Hospital and 45 staff members of different disciplines participated. An interview schedule for the patients and a questionnaire for the staff were used to collect data. The results were mostly descriptive. The surgeon was the most important source of information and of moral support for the patients. The Reach to Recovery volunteer contributed to the rehabilitation of the patients, but the nurses' role in patient education was minor. Patient information, readjustment to community and reaction to treatment were generally satisfactory. It was believed that this type of study could be used as one basis for the development of programs in staff and patient education.

543. NEELY, K. Douglas. *A study of the priority of need for recreation services in three Pennsylvania cities utilizing the Pennsylvania Need Index*. M.Ed. in Recreation and Parks, 1973. 75 p. (B. van der Smussen)

Using the Pennsylvania Need Index 3 medium sized Pennsylvania cities were studied through on-site evaluations. The Index assessed 6 factors of social and service characteristics which were to evidence priority of need for recreation. A comparative priority of needs assessment among the study areas was established.

544. NEWCOMER, Natalie W. *A study of menarcheal and menopausal ages in a Micronesian population*. M.S. in Physical Education, 1973. 60 p. (E. E. Hunt, Jr.)

The female census data on Yap Islands collected by a Harvard Team in 1948 was utilized to determine menarcheal and menopausal ages by probit analysis. Reproductive histories, collected by Jane Underwood on Yap Islands in 1966, were utilized for an analysis of menarcheal and menopausal ages. A probit analysis and a retrospective analysis of menopausal age, a retrospective analysis of menarcheal age and a menarcheal secular trend analysis were completed utilizing 411 women. Relationships between menarcheal age, parity and gravidity to menopausal age were explored by linear regressions, scattergrams, and correlations. Parity and gravidity relationships to menopause were also completed by retrospective means and probit analysis. A t test between 1948 and 1966 menopausal means determined that they were significantly different. The mean age of menopause in 1948 by probit analysis was 49.21 and in 1966 was 50.58. There was no significant difference between menarcheal means of early born and later born. There were no significant relationships between menarcheal age, parity and gravidity to menopausal age.

545. OJA, Pekka. *Intensity and frequency of physical conditioning as determinants of the cardiovascular response of middle-aged men at rest and during exercise*. Ph.D. in Physical Education, 1973. 149 p. (W. C. Nicholas)

Forty men were randomly assigned to 4 conditioning groups: 2 times/wk at 70% of VO_2 max (2/70), 4 times/wk at 70% of VO_2 max (4/60), 2 times/wk at 85% of VO_2 max (2/85), and 4 times/wk at 85% of VO_2 max (4/85). The 10-wk. conditioning program consisted of sustained running for 20 min. at an individually prescribed speed which corresponded to the specified relative intensity; running speed was gradually increased in order to maintain the same intensity throughout the conditioning. Body weight and body fatness, HR and blood pressure at rest, and HR, VO_2 , cardiac output (\dot{Q}), CO_2 rebreathing method), SV, and $(\dot{V}_{\text{O}_2} - \dot{V}_{\text{O}_2})$ during standard submaximal work (3 mph, 5% grade), during a workload that elicited 75% of HR max, and during maximal work were measured before and after conditioning. Conclusions: VO_2 max of voluntarily exercising, sedentary, middle-aged men can be increased with a 10-wk. physical conditioning program that employs any combination of the frequencies of 2 or 4 times/wk and the intensities of 70% or 85% of VO_2 max performed for 20 min., but that a 4-times/wk program

produces a larger change than a 2-times/wk program. The increased maximal aerobic power is brought about by increased cardiac output, which in turn is due to enlarged stroke volume.

546. **PARMER, Edward R.** *Recreational use of community water supply reservoirs in Pennsylvania.* M.Ed. in Physical Education, 1973. 83 p. (B. van der Smitten)

A questionnaire was administered by mail to public water supply agencies utilizing reservoirs for domestic distribution and recreation-planning agencies in the Commonwealth. The responses were analyzed to determine reservoir operating policies, significant factors in the formulation of operating policies, operation of open reservoirs, recreational activities at open reservoirs, perception of water quality degradation by activities, recommended activities at a water supply reservoir and receptivity of water and recreation agency officials in the cooperative utilization of community water supply reservoirs. It was determined that water agency and recreation agency officials differed in their perception of the effect of recreational activities on water supply quality. Certain recreational activities were perceived as more degrading to a water supply than other activities. It was also found that certain activities were allowed and recommended more frequently than other activities at a water supply reservoir. Economics, operation and management concerns and fear of health hazard were significant influences upon and determinants of reservoir operating policy.

547. **PATTON, Robert A.** *An analysis of the position of National Park Superintendent through the job analysis technique.* M.Ed. in Recreation and Parks, 1973. 122 p. (F. M. Coombs)

One hundred and twelve duties and responsibilities performed by a park superintendent were compiled from a review of literature, consultation with professionals in the field, and analysis of the general job descriptions on file with the Park Service and placed into 12 major managerial categories: finance, general administration and management, public relations, planning and development, office management, maintenance and operations, personnel management, interpretation, preservation and protection, program of visitor use, staff and visitor protection, and personal professional growth. The duties and responsibilities were placed in checklist format with a rating scale of significance and mailed to all superintendents (37) within the Northeast Region of the National Park System; data analyzed were from 29 park superintendents. Conclusions: the age of the superintendent, number of years employed by the Park Service, and the number of visitors to the park area affect the ratings of significance given the duties and responsibilities of a superintendent's position; skills in writing and oral communications are essential to quality performance in this position; and, the most significant duties of the National Park Superintendent fall under the categories of Finance, General Administration and Management, and Public Relations.

548. **PETREY, Ronald R.** *Comparison of three methods of practice for improving putting of beginning golfers.* M.Ed. in Physical Education, 1973. 71 p. (E. A. Gross)

Male students ($N=32$) with limited or no golf experience were given instruction in the arm and shoulder method of putting and then assigned to 1 of 3 groups following a pretest. These putting practice groups consisted of a visual, blindfold, and combination of visual and blindfold methods. All testing was done indoors on Astroturf. Putts were scored by measuring the absolute error of the putted ball to the nearest inch. A comparison of mean absolute error scores indicated that there were no significant differences among the 3 practice groups at the end of the experiment. All groups, however, did show significant improvement in putting skill from pre- to posttests.

549. **PINIUK, Anthony J., III.** *Changes in attitudes toward drugs and drug behavior concomitant with changes in drug knowledge level after participation in a drug education program employing a small group approach.* M.S. in Physical Education, 1973. (E. Hunt)

Data collection included completion of an attitude scale, a behavior scale, and a knowledge scale both pre- and posttest. Exp. Ss attended small group sessions and were contrasted to a control group. Exp. and control Ss were grouped into high and low contrast groups based on their pre- to posttest knowledge gain. The findings did not implicate knowledge to be a determinant factor in shaping attitudes or behavior in the area of drug use.

550. **ROSE, Paul B.** *A comparison of the competencies of physical education and nonphysical education major coaches of selected sports in New York State.* M.Ed. in Physical Education, 1973. 47 p. (C. A. Morehouse)

Questionnaires of coaches' background were returned from 102 high schools and were collated with the corresponding principals' evaluations of coaching competence. A Mann-Whitney U-test indicated there was no significant difference in competency ratings between physical education and nonphysical education major coaches. The 2 groups were very similar in the factors analyzed except for playing experience

134 THE PENNSYLVANIA STATE UNIVERSITY

at the college level where 82.8% of the nonphysical education majors, but only 52.5% of the physical education majors had played the sport they were coaching. The coaches who had playing experience at the college level were ranked significantly higher than coaches with no college experience by their principals. Many coaches, including physical education majors, had not completed recommended course work deemed desirable for people in the coaching profession and, therefore, would not meet the certification requirements currently under consideration in New York State.

551. RUNKEL, Susan. *The effects of a developmentally sequenced activity program on trainable mentally retarded children*. M.Ed. in Recreation and Parks, 1973. 159 p. (B. van der Smissem) Utilizing Piaget's theory that the development of the child's ability to think, reason, and learn follows an ordinary sequence of development proceeding from motor to perceptual to symbolic levels, an activity program was designed including areas of sensory motor, gross motor, manipulative, intellectual, and social. Four trainable mentally retarded children who lived at a home for mentally retarded participated in the activity program, and 3 other class members who were not exposed to the activity program served as a control group and lived at home with their families. The program was conducted 3 times/wk for a period of 30 min. each for 5 wk. A Functional Growth Scale and observations of behavior were the bases of analysis. Three individuals varied with their development in the various areas assessed.

552. RUSSELL, Ruth V. *The meaning of recreation activities to the elderly*. M.Ed. in Recreation and Parks, 1973. 116 p. (B. van der Smissem)

In order to determine the value to the elderly of the common senior citizen club activities of community and volunteer service, trips and outings, card playing, shuffleboard, parties, and arts and crafts, a random sample of clubs in rural, town, and urban areas (N = 135) were tested. The Activity Value Scale was designed by the investigator and indicated value orientations for each activity through the use of triadic forced-choice statements. The findings indicated primary value orientations for each activity tested with social, religious, and humanitarian values being strongest and the theoretical value being weakest. The social value appeared to be a strong orientation in parties, trips and outings, and community and volunteer service, while the religious value was reflected strongly in card playing (both positively and negatively). The humanitarian value was reflected mostly in shuffleboard and community and volunteer service. Significant relationships between activity participation and sex and residence, and between activity values and sex and residence were also found.

553. SABOCK, Eula P. *An investigation of self-concept, body-movement image, and performance among beginning collegiate ice skaters*. M.S. in Physical Education, 1973. 115 p. (D. V. Harris) The Adjective Check List and a 70-item self Q-sort were administered to study the effects of 5 and 10 wk. of ice skating instruction. Few significant changes occurred in the self-concept of the beginning skaters; male skaters increased their exhibition scores, while the female skaters increased the number of unfavorable adjectives checked at the end of 5 wk. The "A" students scored significantly higher on affiliation and heterosexuality, while the "B" students scored significantly lower on self-confidence and achievement after 5 wk. of instruction. Significant positive changes in body-movement image were experienced by the beginning skaters during the 5 wk. of ice skating instruction; these changes were positively related to performance level. Students experiencing the greatest positive change in body-movement image over the 5-wk. period elected to continue the skating instruction for an additional 5 wk.; however, no further changes in self-concept and body-movement image occurred.

554. SCOTT, Lynn. *The effect of competence in swimming on the self-concept of emotionally disturbed adolescents*. M.Ed. in Recreation and Parks, 1973. 89 p. (B. van der Smissem)

Teenage patients (N = 8) from a State Hospital who were functioning at the nonswimmer, beginner, and advanced beginner level in swimming skills volunteered to attend 9 swimming lessons for a 5-wk. period. The Ss were tested for self-concept (75 item Q-Sort), swimming competency (Swimming Performance Rating Scale), and self-perception of swimming competence (Self-Rating Form). For the total group no significant difference was found in their self-concepts as a result of the swimming lessons; however, the self-concepts of the beginner group became more negative and the advanced beginner group became more positive after the swimming lessons. All groups had a perceived increase in swimming competency. It was concluded that the self-concept of emotionally disturbed adolescents can exhibit positive change as a result of a 5-wk. swimming program which had the development of competency as a goal.

555. SIEGAL, Rhona A. *The relationship of extroversion-introversion, body-cathexis and the estimation of the passage of time between college females who like and dislike physical activity*. M.S. in Physical Education, 1973. 82 p. (D. V. Harris)

Females who liked ($N = 30$) and disliked ($N = 30$) physical activity were compared on the Eysenck Personality Inventory (EPI), The Body-Cathexis Test (BC), a time estimation test and selected scales of The Gough Adjective Check List (ACL). Females who disliked physical activity tended toward introversion, while females who liked physical activity did not tend toward extroversion. No significant differences in body cathexis were found when comparing those females who liked and disliked physical activity. On time estimation, those who liked physical activity augmented in the estimation of a 20-sec. time period. No other significant differences were found in time estimation. Selected ACL scales appeared to measure the same variables as the EPI, but did not measure the same variables as the BC. Selected ACL scales appeared to differentiate between those who liked and disliked physical activity. Those who liked physical activity were significantly higher in number of favorable adjectives checked, self-confidence, achievement, dominance and change, while those who disliked physical activity scored significantly higher on the abasement scale of the ACL.

556. SOPKIN, Charles D. *A comparison of social interaction within a structured activity environment and an unstructured activity environment*. M.Ed. in Recreation and Parks, 1973. 72 p. (B. van der Smitten)

Geriatric, institutionalized patients ($N = 16$) were divided into 2 equal groups each with 4 females and 4 males. The structured activity environment with a directed leadership approach and the unstructured activity environment with a catalyst-facilitator approach were the 2 settings in which the programs were carried out. A complete recreational program was developed for both groups for the 8-wk. study and included such games as cards, checkers, a plastic bowling game, shuffleboard, rubber balls, music, and simple arts and crafts. An Individual Participation Rating Form, consisting of the 3 socialization elements of group readiness, range of participation, and level of social interaction, was utilized in collecting the data. Findings: The catalyst-facilitator approach in an unstructured activity environment provided greater social interaction than the directed leadership approach in a structured activity environment. Concerning group readiness and range of participation, the structured leadership approach was found to be superior.

557. SULLSBERGER, Thomas A. *An investigation of the influence of an introductory course in therapeutic recreation on students' attitudes toward disabled persons*. M.Ed. in Recreation and Parks, 1973. 72 p. (H. M. Lundegren)

The Ss were 18 male and 22 female undergraduate students enrolled in 10-wk. introductory course in therapeutic recreation. All Ss received classroom instruction (cognitive learning experience), and participated in a recreational leadership experience with disabled persons (affective learning experience). The content involved learning about and working with the emotionally ill, the mentally retarded, the physically handicapped, the culturally disadvantaged, the aging, and those with speech disabilities. The Attitude Toward Disabled Persons Scale Form-O were administered on a pretest-posttest format. The therapeutic recreation program had a positive effect on students' attitudes toward disabled persons. No relationship was found to exist between the students' attitudes toward disabled persons and their sex, the type of disability they worked with in the recreational leadership experience, academic area of specialization, or the amount or type of contact they had with disabled persons prior to enrollment in the course.

558. TYLER, Suzanne J. *Differences in social and sport self-perceptions between female varsity athletes and club participants*. M.S. in Physical Education, 1973. 83 p. (D. V. Harris)

Collegiate intercollegiate lacrosse and softball players ($N = 42$) and class participants ($N = 35$) in the same activities were administered Gough's Adjective Check List (ACL) pre- and postseason to determine social self-perceptions, sport self-perceptions, and perceptions of the typical national level competitor. The 5 most highly skilled from each class or team made up the successful group ($N = 20$); the 5 least skilled from each class or team made up the unsuccessful group ($N = 20$). Perceptions of the ideal women were determined by administration of the ACL to 2 randomly chosen physical education classes ($N = 15$). Varsity sport self-perceptions differed from sport self-perceptions of class participants on 14 of 23 scales on the ACL. Class participants changed more over a season than the varsity athletes. Sport self-perceptions of successful and unsuccessful participants differed significantly. This study indicated that negative changes in self-perceptions may occur over a season of sport involvement.

559. WARD, Clarence. *Effects of mass distribution and inertia on selected mechanical and biological components of rapid elbow extension*. Ph.D. in Physical Education, 1973. 111 p. (R. Nelson)

The parameters were maximal angular acceleration, time to constant velocity, movement time, velocity at 150°, premotor and motor reaction time, integrated EMG/Time to movement and integrated EMG/Time

**136 THE PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY OF PITTSBURGH,
SLIPPERY ROCK STATE COLLEGE, and WEST CHESTER STATE COLLEGE**

movement to maximum acceleration. The variables were the initial load of either 2 or 3 times the condition of forearm-hand and support apparatus, and a mass distribution near the axis or far from the axis of rotation. The results showed that the EMG increased with an increase in inertia. The maximum angular acceleration, velocity at 150° decreased significantly. Movement time and time to constant velocity increased with increased inertia. Acceleration and time to constant velocity also show statistically significant differences for the near versus far condition. With the same inertia, different mechanical results occurred. The biological parameters showed no significant differences for the near versus far condition. Conclusions: Changes were observed in the mechanical and biological parameters when the inertia load was increased; and, the mass concentration variable produced statistically significant differences in the mechanical but not biological parameters.

University of Pittsburgh, Pittsburgh, Pennsylvania

(B. J. Noble)

- 560. STAMFORD, Bryant A.** *Perceptual and physiological responses to equivalent power outputs performed on a bicycle ergometer at varying pedalling rates.* Ph.D. in Physical Education, 1973. 80 p. (B. J. Noble)

Ten highly fit males ranging in age from 20 to 27 yr. volunteered for the investigation. Three tests were performed continuously at equal power outputs (960 kpm/min), but at differing pedalling rates (40, 60, and 80 rpm). In addition, 3 tests were performed intermittently (3-min. work and rest periods) at the same power outputs and pedalling rates as in continuous test sessions. Finally, 3 additional tests were performed at 480 kpm/min. All sessions involved 15 min. of total work and were presented in random order. Test variables included HR, VO₂, V_e, blood lactate and ratings of perceived exertion (RPE). Pedalling at equal power outputs (960 kpm/min) was observed to be significantly more difficult (RPE) only at 40 compared to 60 rpm during both continuous and intermittent work. No differences were observed for blood lactate and oxygen debt between pedalling rates for both continuous and intermittent work at 960 kpm/min. RPE, blood lactate, and oxygen debt was found to be significantly higher during intermittent work at all pedalling rates (960 kpm/min). RPE, blood lactate, and oxygen debt comparisons at 480 kpm/min either between pedalling rates or between continuous and intermittent work were not significantly different.

Slippery Rock State College, Slippery Rock, Pennsylvania

(B. F. Keith)

- 561. HYATT, Gary M.** *Preferences for recreational facilities of rustic-design as compared with modern-design.* M.Ed. in Recreation, 1973. 55 p. (J. W. Shiner)

Personal interviews were conducted in 3 state parks in western Pennsylvania. The results were used to measure user preferences for recreational facilities of rustic design as compared with modern design. Recreational facilities used in the study were picnic sites, scenic overlooks, foot-bridges, shower and toilet facilities, pavilions, and signs. Pencil drawings of 1 modern-designed facility and 1 rustic-designed facility were used to represent each of the 6 facilities used in the study. During the interview, sociological characteristics and user preferences were recorded. Survey results were compiled from 105 interviews. Preference patterns were found to be consistent for the various facilities, so similar choices could be expected in comparable recreational situations. Interview results indicate 75% of all respondents preferred rustic-designed recreational facilities as compared with modern-designed facilities.

West Chester State College, West Chester, Pennsylvania

(E. N. Norris)

- 562. GODEK, Joseph.** *The effect of strenuous exertion upon the subsequent performance of a simple verbal learning task.* M.S. in Physical Education, 1973. 70 p. (E. N. Norris)

Two groups of 16 Ss each were matched according to their ability to learn a list of low similarity nonsense syllables. One group was subjected to a personalized strenuous workload on a bicycle ergometer, the other group served as a control. Analysis by *t* ratio and Pierson Product-Moment Coefficient of Correlation revealed no significant difference between the 2 groups in their subsequent ability in the verbal learning task and no significant relationship between the cardiovascular fitness and the verbal learning ability of the Ss.

563. HICKEY, Maurice B. *The effects of two programs of physical activity on the psychological improvement of army personnel who are suffering from various mental disorders*. M.S. in Physical Education, 1973. 73 p. (R. H. Kapilian)

Two groups of 10 mentally ill adults each were subjected to a rhythmical exercise and a recreational program, respectively. A third group served as a control. The MMPI served as the index of mental health. ANOVA revealed a significant change in the rhythmical exercise group on the hypochondriasis scale, the psychasthenia scale, and the composite of all 5 scales.

South Dakota State University, Brookings, South Dakota

(P. H. Brynteson)

564. CLAUSSEN, Lyle. *Selected physiological changes in college distance runners as affected by a nine-month competitive season*. M.S. in Physical Education, 1973. 72 p. (P. H. Brynteson)

Eight SDSU varsity x-country team members and 8 SDSU student controls were tested 5 times from September through May with approximately 9 wk. between tests. The parameters that were measured were max VO_2 , O_2 pulse, max. VE, VE/O_2 , max HR, and wt. Polynomial regression analysis was applied to the data to determine whether they fit a linear, quadratic, cubic, quartic, or pentic equation. A 2×5 factorial ANOVA was the second statistical information which could assist in the interpretation of the results. Conclusions: the Ss in the exp. group were in excellent condition at the onset of the x-country season as determined by the max VO_2 test; the season of training and competition caused a significant quadratic trend in max VO_2 of the exp. group; the Ss did not reach a peak in the training and/or competitive season as indicated by the plotting of the polynomial regression equation; and the exp. group showed significantly better functioning in all of the physiological parameters investigated than the control group.

565. DINKEL, Sharon Kay. *Atherosclerosis in rabbits as affected by varying diet treatments and d-thyroxine*. M.S. in Physical Education, 1973. 68 p. (P. H. Brynteson)

Male rabbits ($N = 31$) were randomly divided into 4 groups and studied for 10 wk. Group I received a normal diet, group II received a 2% cholesterol diet, group III received the cholesterol diet for 5 wk., followed by a control diet for 5 wk., and group IV was the same as group III except they also received sodium dextrothyroxine for the last 5 wk. Results revealed pronounced atherosclerosis and elevated blood lipids after 5 wk. which became more pronounced in group II after 10 wk. Blood lipids began to return toward normal and some reversal of atherosclerosis in both groups III and IV occurred.

566. GETCHEL, Brent. *Opinions of graduated majors in physical education concerning the professional preparation program at Western State College*. M.S. in Physical Education, 1973. 92 p. (G. E. Robinson)

Of the 414 questionnaires mailed to male and female PE graduates of WSC, 206 were returned satisfactorily answered so as to be used in the tabulation of results. Of the 30 results listed, the major finding was that although the graduates feel some instruction was weak and perhaps too much emphasis was placed in the theory area, the majority felt the program prepared them adequately.

567. NELSON, Randy. *The prevention of blisters on the hands of horizontal bar gymnasts by the use of cryotherapy*. M.S. in Physical Education, 1973. 46 p. (G. E. Robinson)

Twelve freshmen from the basic PE program at SDSU placed either their right or left hand (1 hand exp. and 1 control) in cold water for 10 min. just prior to performing a routine of 20 swings on a horizontal bar. The Ss took the treatment 3 day/wk for 5 wk. Results revealed that cold water treatment administered prior to performance does significantly prevent the formation of blisters.

568. JOHNSON, Meta. *Opinions of the graduated majors in physical education, 1950-1972, concerning their undergraduate professional preparation at Augustana College*. M.S. in Physical Education, 1973. 83 p. (G. E. Robinson)

Questionnaires were sent to 207 PE majors who graduated from Augustana College over a 22-yr. period (1950-1972). A total of 54.1% returns were used for analysis. Results revealed that the respondents felt their preparation was above average but suggested more preparation in gymnastics, stunts, and tumbling.

569. RIIIS, Jeanne. *The effects of various training programs on selected measurements of college women*. M.S. in Physical Education, 1973. 57 p. (P. H. Brynteson)

College women ($N = 71$) from SDSU were tested before and after a 5 wk., 4 day/wk treatment period on 5 girth measures, 2 skinfold measures and strength. The treatments consisted of jogging, swimming, isometrics, and 2 types of isotonic programs. ANOVA and Duncan's Multiple Range revealed the jogging

**138 SOUTH DAKOTA STATE UNIVERSITY, GEORGE PEABODY COLLEGE FOR
TEACHERS, and MEMPHIS STATE UNIVERSITY**

group lost significantly more inches in upper arm girth than the isometric, isotonic low-repetition, and swimming groups. No other F ratios were significant.

570. SCHMIDT, Gregory. *The reasons for out-migration of selected student-athletes from South Dakota*. M.S. in Physical Education, 1973. 70 p. (S. J. Marshall)

Of 248 suggested South Dakota student-athletes who had attended college out-of-state (1945-1972), addresses were available for 152. Of this number 74 (62%) responded to the questionnaire. The major reasons for leaving SD to attend college were by ranking: academic prestige of out-of-state institution; prestige of athletic program; better educational opportunity; career preference; greater financial aid; plus 19 additional factors of lesser influence.

George Peabody College for Teachers, Nashville, Tennessee

(J. M. Graves)

571. BLACK, Kenneth D. *Developing and evaluating cardiovascular fitness measures in preschool normal and mentally retarded children*. Ed.D. in Health and Physical Education, 1974. 88 p. (H. L. Garrett)

Twelve mentally retarded, 26 culturally deprived, and 39 normal preschool children were measured. A modified Balke Treadmill Test was adopted as the standard of cardiovascular fitness. This was compared with age, ht., wt., bent-knee sit-ups, 100-yd. run, shuttle run, and 3 measures of PR obtained from a step test. Administrative feasibility was determined by percent of valid scores. ANOVA determined differences between groups, age, and sex. Correlation and regression analysis were performed to determine the significant predictors of treadmill performance ($p > .05$). None of the tests proved appropriate for mentally retarded preschool children or nonrelated children under the age of 5, but all proved appropriate for normal children over the age of 5. Only 1 variable, the 100-yd. run, was a significant predictor ($r = .80$) in any combination of variables. Performance increased with age. There was no difference between boys and girls. The culturally deprived subjects performed significantly better on the shuttle run and pulse recovery.

572. REEDY, James A. *An investigation of faculty work load in physical education and athletics in selected small, private colleges*.

Physical education administrators in small, private institutions ($N=64$) in 8 athletic conferences in the Middle Atlantic area were surveyed as to current policies and practices in assigning faculty workloads. Staffing trends and causes of workload problems were identified in the 43 participating schools. Differences in male and female loads were scrutinized, and physical education assignments were compared with those in other departments. Estimations of clock hours per week and percentages of total load were obtained for specific teaching, coaching, and administrative tasks. It was concluded that the clock hour method of assigning loads was superior to credit hour, contract hour, or student credit hour methods due to the deficiencies of the latter 3 in dealing with tasks other than teaching. Insignificant r s were found between breadth and financial aspects of programs and most workload factors. Level of competition and won-lost records in basketball also had significant effects on most aspects of load. Guidelines for assigning PE and athletic workloads in small, private colleges were drawn from the survey data and included in the appendixes.

Memphis State University, Memphis, Tennessee

(R. Hatley)

573. JOHNSON, Susan B. *The effects of tactile communication in sport on changes in interpersonal relationships between black and white children*. M.Ed. in Physical Education, 1973. 84 p. (D. A. Pease)

This investigation has extended the theoretical framework of Newcomb's A-B-X model of orientation into the area of social interaction through the medium of tactile communication in the context of sport. Four groups of ELE school children ($N=235$), each group representing integrated self-contained 3rd grade classes, were pretested by a Likert-type sociometric scale to determine their interpersonal relationship status with other children in the same group. The Ss then participated in 1 of the 6-wk. sports units in which: (1) tactile experiences; (2) cooperative experiences; (3) individual participation in PE; and (4) no structured program in PE (recess) were manipulated. Ss were then posttested on the same scale. Two separate ANOVA's were calculated on the pre- to posttest change scores: (1) blacks rating whites; and (2) whites rating blacks. The blacks participating in the Tactile group, the Cooperation group, and the Recess group rated whites more favorably on the posttest while the blacks of the Individual group rated

whites less favorably. No statistically significant differences were reported among the Tactile group, the Cooperation group, and the Recess group. Statistically significant differences were found between the Individual group and the Tactile group (.01), the Cooperation group (.01), and the Recess group (.05). The whites of all 4 groups did not rate blacks more favorably on the posttest. There were no statistically significant differences revealed among the Tactile group, the Cooperation group, the Individual group, and the Recess group.

574. NASH, Karen R. *Parent-son compatibility: A study of the relationship between interpersonal relations orientations and the development of male homosexuality*. M.Ed. in Health Education, 1973. 88 p. (D. A. Pease)

Basic Freudian psychology suggests that the son's attachment to and identification with the mother, along with hostility toward and jealousy of the father, result in an inversion in his choice of a love-object. An investigation was undertaken concerning parent-son compatibility and its relationship to male homosexuality. Using Schutz's Fundamental Interpersonal Relations Orientations Theory (FIRO), which extensively defines and describes interpersonal behavior in 3 need areas: inclusion (I), control (C), and affection (A), compatibility scores between any 2 people can be derived from calculations as measured by the FIRO-B Questionnaire. Two types of compatibility can be determined: reciprocal compatibility (rK), and originator compatibility (oK), for an individual's expressed behavior as well as for his wanted behavior. All homosexual Ss and their participating family members were given the FIRO-B Questionnaire. From the raw FIRO-B scores compatibility was determined between mothers and their homosexual sons, the same mothers and their heterosexual sons, fathers and their homosexual sons, and the same fathers and their heterosexual sons. Two triple interaction ANOVA's, 1 for rK and the other for oK, were used to test whether the mean compatibility scores of homosexual sons with their parents were significantly different in each need area than were the mean compatibility scores of their heterosexual brothers with the same parents. No statistically significant interactions for each type of compatibility were found between parent, son, and need area. Only 1 (oKc) of 6 possible dyadic combinations between mothers and their sons was in the theoretically predicted direction, while only 1 (oKs) of 6 possible dyadic combinations between fathers and their sons was *not* in the theoretically predicted direction. Therefore, it might be suggested that the main relationship between parent-son compatibility and male homosexuality is the father's general incompatibility with his homosexual son, rather than the more popular thesis of the mother's abnormally intimate compatibility with her homosexual son.

The University of Texas at Austin, Austin, Texas

(W. Wyrick)

575. BRAGMAN, Ruth Susan. *Cardiovascular fitness of totally blind boys aged 11-15*. M.Ed. in Physical Education, 1973. 108 p. (D. Burdeshaw)

A submaximal bicycle ergometer test was performed by totally blind boys (N = 9), following 2 orientation periods. Two submaximal exercise bouts at workloads at 150 kpm/min and 300 kpm/min with an intervening rest period were administered. The blind boys' overall cardiovascular reaction to submaximal exercise on a bicycle ergometer seems to be similar to that of normal sighted boys. Learning and habituation does not exhibit a significant effect on the physiological measurements obtained on blind boys on 3 different test days on the ergometer.

The University of Texas at Austin, Austin, Texas

(J. H. Haag)

576. BURKART, Joan M. *Selected education legislation of the Lyndon Baines Johnson administration and implications for school health education*. Ph.D., 1973. 187 p. (J. H. Haag)

Eight laws enacted during the Lyndon Baines Johnson administration were selected because they directly affected elementary and secondary schools and teacher education. Outstanding health problems of pupils in elementary and secondary schools and prospective teachers were revealed by analysis of the collected health statistical data. Upon examination of the legislation and consideration of the health problems, it was shown that the laws contained implications for school health education. The laws indicated direct and implied provisions for school health education.

The University of Texas at Austin, Austin, Texas

(W. Wyrick)

577. DOLGENER, Forrest Allen. *The evaluation and prediction of maximum aerobic power in females*. Ph.D. in Physical and Health Education, 1973. 111 p. (D. Burdeshaw)

College females ($N=30$) were administered 3 tests of aerobic power: 2 walking treadmill tests and 1 running treadmill test. HR and VO_2 determinations were made throughout each test. Multiple linear regression analysis was used to determine prediction equations for VO_2 max with predictors being HR, ventilation, RQ, VO_2 , weight, and % fat. No significant differences in HR and VO_2 between the 2 walking tests over the range of workloads used were found. The running test elicited a significantly higher VO_2 max than did the walking tests and it was concluded that a progressive running treadmill test should be used when directly measuring VO_2 max in nontrained females. It was also concluded that when predicting VO_2 max in nontrained females HR, weight, and percent fat should be included in the equation.

578. KNOWLES, Claudia Jane Kleppinger. *The effects of extrinsic feedback on the learning of gross motor skills by mildly and moderately retarded males*. Ph.D. in Physical and Health Education, 1973. 85 p. (L. W. McCraw)

Moderately mentally retarded males ($N=46$) were divided into 3 groups: control group, traditional group, and feedback group. The traditional and feedback groups received instruction 5 days/wk for 4 wk., while the control group only experienced pretests and posttests. All groups were measured on 3 motor tasks: volleyball wall catch, soccerball kick, and softball throw. There was a significant difference among treatment groups on the volleyball wall catch; the traditional and control groups and the feedback and control groups were seen to differ significantly, while the feedback and traditional groups did not differ. Extrinsic feedback did not appear to be an important factor influencing the motor learning of the mentally retarded, since it may not be a high incentive condition for them.

579. LANEY, Shirley Ann. *Anthropometric and strength correlates of dynamic balance*. Ph.D. in Physical and Health Education, 1973. 160 p. (L. W. McCraw)

The strength of 4 muscle groups, 7 anthropometric measures, 6 anthropometric indices, and performance on a stabilometer at 2 different stance widths were studied in 94 jr. and sr. college women. Except for those individuals whose performance level is 1 standard deviation or more beyond the mean, the body build is a relatively unimportant factor in performance on the stabilometer. Individuals whose performance level is exceptionally high tend to exhibit a different body build than those whose performance level is extremely low. Insofar as the structural aspects of the human physique are concerned, the principles and mechanics governing equilibrium do not appear to be directly applicable to performance on the stabilometer. Strength of the plantar flexors and extensors of the leg are unimportant in stabilometer performance.

580. MOSS, Raymond Fidalis. *Motor specificity in the mentally retarded*. M.Ed. in Physical Education, 1974. 74 p. (W. Wyrick)

Mentally retarded males ($N=15$) were administered 32 consecutive trials on each of 3 reaction latency tasks over 4 days. Two of the simple reaction time tasks were followed by movement patterns of increasing complexity. As in normal populations, simple reaction latency increased significantly with increased task complexity. The means of reaction latency significantly decreased as a function of practice trials. Reaction latency and movement time were not highly correlated nor were the performances across the 3 tasks highly correlated. Correlation coefficients between reaction latency and movement time decreased with trials.

581. MYER, Jr., Robert Wills. *The relationship between arm strength and baseball throwing velocity*. M.Ed. in Physical Education, 1974. 62 p. (L. W. McCraw)

University male students ($N=52$) were tested for arm strength and baseball throwing speed. Arm length, 3 measures of arm strength, and throwing speed measurements were taken for each subject. Subjects threw a regulation baseball at a target and flight time of the baseball was electrically timed. Distributions were normal within the limits of chance for the strength measures and arm length. Tests administrations had extremely high reliabilities, however, intercorrelations among all test variables were extremely low which tended to support the findings of independence between strength and speed as reported by others.

582. SCARBOROUGH, Karen Louise. *Central processing of adult females of divergent age and activity levels*. Ph.D. in Physical and Health Education, 1973. 119 p. (W. Wyrick)

Four groups of females dichotomized on the factors of fitness and age were administered discrimination

reaction time trials and the Wechsler Adult Intelligence Scale. Older adult females did not differ significantly across fitness levels on discrimination reaction time, nor did the younger subjects. Older and younger adult females differed significantly on DRT, fitness not being a substantial factor. Older fit and unfit females did not differ significantly in verbal performance IQ difference nor did younger fit and unfit subjects.

University of Texas at El Paso

(J. Freischlag)

583. SHOOP, Linda A. *A comparison of videotape replay, instructional media, and traditional teaching method on the learning of beginning swimming skills*. M.S. in Health and Physical Education, 1973. 58 p. (J. Freischlag)

The Rosentsweig Power Swimming Test and a rating scale of swimming form were used to determine skill level of men and women in a college instructional swimming class. Beginning level swimmers ($N=37$) were selected as Ss and assigned randomly among 3 groups for a 4-wk. treatment period. Group A received a traditional method of teaching, group B utilized VTR plus traditional method, and group C used VTR and loop films without the assistance of an instructor. After the 12 total hr. of treatment, posttest scores were tabulated to yield composite learning scores. No significant difference was indicated between groups for the front crawl and elementary backstroke when the data were tested by a series of ANOVA's. Suggestions are offered for the use of VTR and loop films in complementing the learning environment for swimming instruction.

584. ELLISON, Kerry. *The relationship of pain tolerance, anxiety, and personality among selected college athletes and nonathletes*. M.S. in Health and Physical Education, 1973. 48 p. (J. Freischlag)
- Subjects ($N=84$) were randomly selected from intercollegiate sport groups of basketball, baseball, football linemen, football backs, track distance runners, track field and sprint men, and nonathlete males. Ss were submitted to a muscular endurance task employed to determine pain tolerance. The task required flexion of the 5th finger of the hand on a trigger-like apparatus to lift an 8 lb., 11 oz. weight at a pace of 1 lift/sec. Galvanic skin response was used to measure anxiety throughout task performance and the Bernreuter Personality Inventory administered as the multifactor personality instrument. Data were treated by ANCOVA and discriminant analysis techniques. No difference in pain tolerance between sport groups or between athletes and nonathletes were found. Discriminant analysis of the simultaneous interaction of pain tolerance, anxiety, and the 6 personality traits was not able to differentiate subject groups. However, anxiety and personality trait differentiation with group membership defined by pain tolerance level was found to exist. Subsequent univariate f tests showed significant group differences only for anxiety as Ss exhibiting high pain tolerance showed corresponding low levels of anxiety during task performance.

Texas A & M University, College Station, Texas

(L. J. Dowell)

585. BAILEY, Karyl Vaughn. *A study of light apparatus activities in the United States from 1860 to 1920*. Ph.D. in Physical Education, 1973. 272 p. (L. J. Dowell)

Data used in this study were collected on an extended trip throughout the East and Midwest. As indicated in a pilot study, city and university libraries were visited, private individuals were interviewed and light apparatus studied, measured, and photographed. A detailed description of the physical characteristics of wands, dumbbells, Indian clubs, barbells, hoops, and rings was presented based on information gleaned from measurements and photographs of authentic equipment, sales catalogues, and physical description in the literature. Basic representative light apparatus exercises performed from 1860 to 1920 were described using a quantifying procedure determined by a thorough investigation of textbooks, manuals, and instruction books which served as a guide in the use of light apparatus. The basic representative light apparatus exercises were illustrated with discussion including directions and variations for performing each exercise. It was concluded that light apparatus activities played a prominent role in physical education programs in the United States from 1860 to 1920 and served as an inexpensive way to provide exercise for students. The major emphasis of light apparatus activities was the desire to develop symmetry of form and function in performance as exercises were performed to the right, left, alternately, and then simultaneously.

586. ELLIS, Richard Patrick. *The effects of limited sleep deprivation upon athletic performance*. M.S. in Physical Education, 1973. 88 p. (J. M. Chevette)

Volunteer male Ss ($N=42$) were randomly assigned to 2 groups. Both groups were given the 6-min.

Astrand-Ryhming bicycle test, a static hip flexibility test, a dynamic flexibility test, a dodging agility run, and a 35-yd. dash prior to and after the experiment. The exp. group obtained 8 hr. sleep prior to the first test but were deprived of sleep for 24 hr. before the second test, while the control group obtained 8 hr. sleep prior to both testing sessions. Blood glucose level was examined prior to the second testing session of both groups. It was found that limited sleep deprivation did not adversely affect general physical performance associated with physical education activities, fitness testing, or athletic skills.

587. HILL, Dickie Leroy. *The effect of carbon monoxide on serum cholesterol of female rats*. Ph.D. in Health Education, 1973. 101 p. (J. M. Chevette)

Female rats (N = 48) were randomly assigned to 1 of 3 groups. Group I was exposed to room air, group II was exposed to 50 ppm carbon monoxide for 4 wk. and 150 ppm carbon monoxide for the next 4 wk., and group III was exposed to 100 ppm carbon monoxide for 4 wk. and 200 ppm for the next 4 wk. for 8 hr/day, 5 day/wk. Blood samples were taken before the exp. and at the end of each week's exposure to determine serum cholesterol. Serum cholesterol was measured by obtaining optical density readings from a spectrophotometer reported in micrograms per 100 ml. of serum. Results indicated that exposure to carbon monoxide of 50 ppm does not affect the serum cholesterol levels of rats while exposure of 100 ppm of carbon monoxide does affect the serum cholesterol of rats. It was also found that carbon monoxide adversely affects the normal wt. gain of rats.

588. JOHNSON, Dewayne John. *The effect of ergogenic aids on selected physiological and motor skill parameters*. Ph.D. in Physical Education, 1973. 243 p. (L. J. Dowell)

College men (N = 40) were selected from 65 volunteers who recorded a HR of 168 bpm or lower on the Astrand-Ryhming 6-min. bicycle test. Ss performed a work bout designed to simulate a SHS basketball game. At 10-min. intervals, beginning after 3-min. of treadmill work Ss took a vertical jump test, MT test, and a field goal speed test. Expired air was collected for 5-min. prior to the work bout, at half time and immediately after the work bout. Wt. loss was calculated using preexercise and postexercise measures of body wt. HR was monitored every 10-min. during the work bout. Ss took the complete test 3 times, after ingesting water, after ingesting Coca Cola, and after ingesting gatorade. ANOVA for repeated measures was used to analyze data. It was found that VO_2 , HR, and wt. loss are not affected differently by ergogenic aids but performance in the vertical jump was superior in the later stages of a game when gatorade and Coca Cola were ingested. Performance in MT and field goal shooting was found to be superior when gatorade was used.

589. JORDAN, Carl David. *A cinematographical analysis of selected karate arm and leg techniques*. Ph.D. in Physical Education, 1973. 292 p. (L. J. Dowell)

Ss (N = 5) were members of the Texas A&M University Karate Club that had achieved the rank of first degree black belt. Three Karate arm and leg techniques were filmed with two 16-mm. Locam, high speed movie cameras. Film speed was 200 fps, with a shutter speed of 1/600 sec. Techniques were analyzed on a Vanguard Motion Analyzer. Force measurements for each Karate technique were determined by a strain gauge apparatus connected to an oscilloscope with a camera attachment. Variables of ht., wt., leg length, leg strength, arm length, arm strength, velocity, linear displacement, degree of movement of the trunk, shoulder, humerus, elbow, hip, femur, and knee were examined. It was found that Karate leg techniques exert approximately twice as much force as arm techniques. The variables of ht., wt., arm strength, and leg length relate to the force exerted by Karate arm and leg techniques. Femoral flexion and abduction, knee flexion, and final velocity affected the force exerted by leg techniques while average velocity, time, elbow flexion, and final velocity affected the force exerted by arm techniques.

590. LAMBERT, Jacqueline. *Effects of administering a selected ergogenic aid prior to strenuous activity*. M.S. in Physical Education, 1973. 52 p. (H. Tolson)

Male volunteers (N = 30) were selected based on their predicted max VO_2 based on the Astrand-Ryhming test. Ss were given Stim-O-Stam 1 hr. before testing on 1 or 2 testing sessions. Ss' age, ht., wt., resting HR, systolic blood pressure, and diastolic blood pressure were determined prior to exercise. Ss performed an exercise bout on a bicycle ergometer until they could not maintain prescribed pedal speed. Exercise HR for each min., blood pressure at selected intervals, and length of bout were recorded. Recovery measures of HR, blood pressure, and VO_2 were taken for 5 min. after the exercise bout. It was concluded that the administration of Stim-O-Stam 1 hr. prior to strenuous work results in greater blood pressure efficiency.

591. RIGGS, Charles Elmer. *An investigation of the relationship between blood flow and maximal oxygen intake*. M.S. in Physical Education, 1973. 46 p. (H. Tolson)

Male Ss (N = 30) were selected so that a wide range of fitness levels were represented based on the results of the Astrand-Ryhmung test. Ss reported to the laboratory and rested for 5 min. after which HR, blood pressure, forearm blood flow, wt. and postexercise blood flow was determined. A correlation matrix was constructed and a multiple regression equation was developed to predict max $\dot{V}O_2$ utilizing the stepwise regression technique. It was concluded that there is a relationship between blood flow parameters and max $\dot{V}O_2$; but that the multiple regression equation developed would not accurately predict max $\dot{V}O_2$.

592. STONE, Stephen Elliott. *The boxer hero as literary tragic figure: A study in contemporary relocation*. Ph.D. in Physical Education, 1973. 118 p. (J. M. Chevreton)

This study sought to locate a single modern counterpart to one of classical tragedy staple figures, the warrior-hero. It has found him, in new guise in the boxer-hero of contemporary literature. The contemporary relocation of this concept is illustrated in the selected works of 7 American authors who published their novels, short stories, and plays during the period 1925-1969. The major conclusion drawn from an examination of the fiction considered in this study is that the boxer-hero is faced with a modern tragic dilemma because the very resources he had developed in the ring seem pathetic in the face of complexities and evils which elude any direct or simple approach. The boxer-hero, like his ancient counterpart, must struggle beyond the limits of ordinary men. Except where a hostile determinism erodes his capacity, the struggle is within.

Brigham Young University, Provo, Utah

(D. Shaw)

593. ALJANIAN, Reza. *A curriculum guide for instruction in the area of Physical Education at the elementary, secondary and college levels of the schools of Iran*. M.S. in Physical Education, 1972. 58 p. (E. Roundy)

The program was developed for each of the grades 1 to 12 and for the college level. The procedures employed were library research, observation of effective programs in nearby schools, and evaluation by curriculum experts at the various levels.

594. ALLEN, F. Dean. *Winter recreation use of the Tibble Fork area in American Fork Canyon, Utah*. M.A. in Recreation Education, 1973. 61 p. (B. F. DeHoyos)

Based on the findings of this study, it was concluded that most of the winter recreation participants at Tibble Fork were families from Utah County. Weekends and holidays were the most heavily attended days with a high concentration of activity near the main parking lot. The greatest number of participants were involved in tubing and sledding. Snowmobiling was the second most popular activity. Most participants were satisfied with the facilities at Tibble Fork.

595. BAILEY, Gale L. *A study of the recreational development plans of Stansbury Park as compared with the expectations of property owners*. M.A. in Recreation Education, 1972. 59 p. (C. T. Thorstenson)

The researcher attempted to determine the participation of the property owners in facilities similar to those in the development plans, and to determine the owners' anticipated use of the planned facilities once they resided at Stansbury Park. Based on the findings of this study, it was concluded that property owners probably would be more active in recreation when living at Stansbury Park than before and that organized group activities would be less preferred than individual recreation activities. It was also concluded that an important reason for purchasing lots at Stansbury Park was the recreation opportunities. Additional recreational facilities were desired that were not in the development plans of Stansbury Park.

596. BEAUSIDE, James W. *The contribution of intermediate swimming as taught at Brigham Young University toward the development of strength and endurance*. M.S. in Physical Education, 1972. 79 p. (P. E. Allen)

The study was conducted with 78 male Ss, 40 of whom were in a control group and 38 in an exp. group. The control group did not participate in PE classes, while the exp. group participated in intermediate swimming classes during the spring and fall semesters of 1971 at BYU. Conclusions were, intermediate swimming as taught at BYU does not contribute toward the development of strength; and intermediate swimming as taught at BYU does not contribute toward the development of endurance.

597. BOHNE, Elaine. *Physical education involvement with educable mentally retarded students in Utah secondary schools*. M.S. in Physical Education, 1972. 62 p. (C. B. Call)

The study was to determine if there was a difference between those activities offered to educable mentally retarded students when enrolled in regular physical education classes and when enrolled in special education

classes. Questionnaires were returned from 73 secondary schools selected from the 40 school districts in the state. Questionnaires were analyzed and responses from personal interviews were presented. The findings of the survey revealed that the activities most frequently taught were team sports. The study concluded that there was very little difference between activities taught by PE teachers as compared to those activities taught by special education teachers.

598. BOKKE, Robert. *The effect of recreation programs on rehabilitation in selected California State Prisons*. M.A. in Recreation Education. 1972. 82 p. (B. F. DeHoyos)

A questionnaire was constructed and randomly distributed to the inmates, probation and parole officers, and to the prison wardens. All of the inmates were males serving their sentences in California State Prisons. Through the questionnaire the attitudes and opinions of the inmates, wardens, probation and parole officers were investigated. It also determined that their satisfaction level with the present institutional recreation program as to its effectiveness in rehabilitating inmates of the prisons. The findings indicate that programs offered by outsiders were enjoyed most by the inmates, while on a daily basis they participated more in passive activities than any other activity. The inmates feel that the recreation program and facilities are both inadequate while the probation and parole officers feel they are adequate. The probation and parole officers also feel the recreation program has no rehabilitation value to the inmate.

599. BOLANDER, Drew F. *An evaluation of the misdemeanor drinking-driving program in Utah County*. M.S. in Health Science. 1972. 82 p. (D. Shaw)

The increase in knowledge of court-referred convicted misdemeanor drinking-driving offenders after they had attended 6 free-standing educational presentations oriented to the drinking driver was determined. The presentations were presented by the Misdemeanor Probation Services of Provo City. Data were collected from pre- and posttests administered each individual enrolled in the course. A comparison was made of the scores of the pre- and posttests. A standard Z score was used to test the null hypothesis. The null hypothesis in this evaluation was rejected and the alternative hypothesis was accepted. There was a significant relationship between the attendance of the 6 free-standing presentations and knowledge increase.

600. BOLLINGER, David L. *An historical investigation of the recreational philosophy, views, practices and activities of Brigham Young*. M.A. in Recreation Education. 1972. 60 p. (B. F. DeHoyos)

This historical research was conducted and information gathered from Brigham Young's journals, the Manuscript History of Brigham Young, compilations of Brigham Young's discourses, books and articles written by his daughters, accounts written by those who were present when recreational events occurred, compilations of manuscripts and documents, and interpretations of various historians who interpreted events as they read them. The historical data collected indicated Brigham Young developed over a period of time a definite philosophy of recreation in regard to his personal life. He enjoyed not only large group gatherings where recreational events occurred, but also culturally refined recreational pursuits as well.

601. BRINK, Sheryl L. *The life and educational contributions of Charles James Hart*. M.A. in Physical Education. 1973. 120 p. (G. Fisher)

Hart was born June 27, 1896, to Charles Henry and Adelia Greenhalgh Hart in Logan, Utah. He was interested in sports as a boy and played fullback for the first Granite HS championship football team in 1914. At the Utah Agricultural College Charles was active in football and track, college plays, and student government. After graduation he taught for 2 yr. at Teton HS. Hart then came to BYU to coach the football and track and field teams. He received his Master's and Doctorate degrees from New York University. While director of the PE department, Hart contributed much to the improvement of the curriculum and the intramural program at BYU. Hart was instrumental in the continuing of the Mt. Timpanogos Hike and the Invitation Meet and Relay Carnival.

602. BROWER, Robert L. *Recreational and family background of juvenile delinquents at Utah State Industrial School*. M.A. in Recreation Education. 1972. 69 p. (B. F. DeHoyos)

The researcher determined whether there was a definite pattern of lack of recreational skills among the inmates of the State Industrial School in Ogden, Utah. Based on the findings of this study, there was no distinctive difference as to the delinquents' lack of recreational skills, except in the area of musical instruments, wherein the majority of the delinquents demonstrated either a poor or no skill level. Sixty-three % of the females preferred passive activities, whereas, the males preferred active recreation. Both males and females participated seldom or never with their families in recreational activities. Only a very small percentage of the students rated themselves as excellent in any recreation skill. Seventy-nine % of the males and 55% of the females checked that they did not have several hours of free time a day.

603. CAMPBELL, Maurice L. *The community school of Murray-An evaluation*. M.A. in Recreation Education, 1972. 106 p. (B. K. Olsen)

The study attempted to evaluate organization and administration, communications with the community, programming of the community school, and teacher involvement. An objective type questionnaire was used to aid the researcher in making his evaluation. Conclusions revealed that scheduling, evaluations, and family programs were areas of the community school that needed improvement. Recommendations included: the need of incorporating the community school program into the total curriculum program of the district; the need for receiving financial aid for the community school program from the Murray School District budget as well as from community education funds allocated by the Utah State Board of Education; the need for polling community school participants to learn about their wants, needs, and attitudes; the need for including activities which would encompass a large variety of activities for the entire family; and the need for a complete evaluation of the entire community school program at least every 2 yr.

604. CONNEY, Larry D. *The effect of cold applications on heart rate during rest, exercise, and recovery*. Ed.D. in Physical Education, 1972. 94 p. (E. S. Roundy)

The effects of the following treatments upon HR were compared: all cold during rest, exercise, and recovery; cold during rest; cold during recovery; cold during exercise; all dry during rest, exercise, and recovery; and control treatment without cold or dry applications. Findings were based on the recorded HR obtained from 30 conditioned students during each minute of a 10-min. rest period, 5-min. exercise period, and a 10-min. recovery period. Each S received each of the 6 treatments. Through an ANOVA and Tukey's Studentized Range Test significant mean differences were found and the following conclusions were drawn: during the rest period the effects of cold applications upon HR were inconsistent and of questionable value; cold applied continuously during the exercise period had a definite effect upon reduction of the exercise HR; cold applications applied during the recovery period had an effect upon the HR during the early stages but were of questionable value during the remainder of recovery; although most differences were insignificant, the trend of treatment effects during the rest and recovery period did favor the cold treatment.

605. CARR, C. Reed. *Assessment of seasonal body composition changes of varsity basketball players*. M.S. in Physical Education, 1973. 59 p. (P. E. Allsen)

Changes in body composition were assessed by determining percent body fat through the use of hydrostatic weighing. Basketball players ($N=10$) across the 1972-73 season were Ss. Findings were based on percents body fat obtained for all players and were analyzed for significant changes individually, by team average, and by groupings as starters, substitutes, forwards/centers, and guards. Statistical analysis revealed significant changes took place for individuals and by various groupings. Based on the findings, it was concluded that significant changes in percent body fat over the season were measured, and decreases in percent body fat were experienced by the Ss.

606. CICCOLELLA, Margaret E. *Body composition changes of obese college women during weight reduction*. M.S. in Physical Education, 1972. 54 p. (G. Fisher)

The study determined changes in lean body mass under the conditions of exercise, caloric restriction, and caloric restriction plus exercise. Ss ($N=41$) participated in the 10-wk. exp. Skinfold measurements were taken at 2 sites on the body, the arm, and the iliac crest. These were used to calculate percent body fat and thus determine changes occurring in lean body mass. The Ss were measured at the beginning and end of a 10-wk. period. Results were statistically analyzed using an ANCOVA and a Scheffé analysis. The results indicated definite differences in body composition changes among the treatments. Caloric restriction plus exercise was found superior to exercise alone for decreasing percent body fat in obese college women. The null hypothesis was therefore rejected and the alternate hypothesis accepted.

607. COON, Paul E. *A comparison of driver license intervention programs for first time juvenile traffic violators in Utah, Juab, Wasatch, and Sanpete Counties*. M.S. in Health Science, 1972. 54 p. (D. D. Shaw)

The educational approach of intervention utilized by Utah County for first time juvenile traffic violators was compared to the intervention program of Utah, Juab, Wasatch, and Sanpete Counties, based on accidents and violations. Results indicated that those first time juvenile traffic violators who were sent to Advanced Driver Training had less recidivism for 24 mo. subsequent to their intervention than did the first time juvenile violators in the other 2 samples who did not take Advanced Driver Training but had some other intervention.

608. COOPER, Carma C. *A comparative study of treatment modalities for emotionally and socially maladjusted people*. M.S. in Physical Education, 1972. 50 p. (C. B. Call)

The effects of group-oriented physical activity programs on the social maturity of hospitalized mental patients were determined. Male and female mental patients ($N=20$) from the North Salt Lake Unit of the Utah State Mental Hospital were Ss. Ten Ss were in the control group and 10 Ss were in each exp. group. The exp. groups participated in an 8-wk., 3 day/wk., activity course during the spring semester of 1972. Pretests and posttests were administered to all subjects to determine if 8 wk. of activity had any effect on social age and social quotient scores. No statistically significant differences were noted between pre- and posttest scores of social maturation in either exp. groups when compared with the control group.

609. DIXON, Rick. *An analysis of the reasons by the most sought after football players regarding their selections of institutions of higher learning*. M.S. in Physical Education, 1972. 46 p. (P. E. Allsen)

Reasons given by 64 of the most sought after HS football players of the 1970 season regarding their college selections were analyzed. The data obtained from the questionnaires were analyzed on a χ^2 basis and mean weightings. Within limitations of the study, the following major conclusions are justified. Football traditions, coaching staffs, and educational opportunities were the most influential factors in the prospective students—athletes' decisions in their selections of institutions of higher learning.

610. DUMAGUIN, James. *A comparison of two methods of horizontal backcourt coverage in defensive volleyball*. M.S. in Physical Education, 1973. 33 p. (B. Jarman)

The effectiveness of the dive and roll in defensive backcourt coverage in volleyball was compared. The pepper drill was used as the basis of the test. Six high school volleyball players were assigned distances of 6, 8, and 10 ft. in a counterbalanced order to perform both skills of backcourt coverage. It was found that the dive was more effective than the roll in methods of backcourt coverage. It was also found that as the distances were increased, the dive became far more effective than the roll.

611. DUNN, John M. *A study of the relationship between fifth and sixth grade children's maximal oxygen intake and running performance at select distances*. Ed.D. in Physical Education, 1972. 107 p. (L. C. Johnson)

The selected distances were 600, 900, 1200, and 1500 yd. Additional subproblems were: to establish a reliability coefficient for the distance run most related to maximal oxygen intake, and to determine whether there are differences in running performance times and maximal oxygen intake by sex, grade, and sex within grade. The findings were based on the maximal oxygen intake and running performance of 110 children. The data was analyzed by a multiple regression program, test-retest reliability coefficient, and an ANOVA. Conclusions were that the 4 running performance tests are equally, but not highly related to, maximal oxygen intake; however, they are at present the best single measure of the cardiovascular fitness of 5th and 6th grade children available; the 1500-yd. run-walk is a reliable test; and the boys running times and maximal oxygen intake values were better than the girls; however, no real differences were found between grades.

612. DUPAIX, LeMoyné A. *A history of the men's intercollegiate gymnastics program at Brigham Young University*. M.S. in Physical Education, 1972. 62 p. (M. F. Hartvigsen)

The period covered was from the fall of 1958 through and including the spring of 1972. A brief biography of each of the head coaches' background comprises 1 chapter. The periods are subdivided under each coach; presenting a season's forecast, the team members, the meet results, and finally the recognition of outstanding performances, awards, and honors won by the team and its members. A brief history of the development of gymnastics from its early beginning in China, through the Greek and European periods, its introduction to the United States, and finally its period of development in the State of Utah is included in the study.

613. EDWARDS, Constance J. *Comparison of self-motivation, teacher-structured group reward, and teacher-structured individual reward on the learning of rope jumping skills*. M.S. in Physical Education, 1973. 42 p. (P. Jacobson)

Findings were based on the pre- and postrope jumping test scores of 45 women enrolled in activity for fitness classes at BYU. Three statistical procedures were used including learning score measurement, ANOVA, range testing of mean differences. The results indicated that learning scores existed for all Ss and that significant differences were evident in the learning scores among treatments. Both exp. groups with teacher-structured rewards had significantly greater learning score means than the control group utilizing

self-motivation. The exp. group with a teacher-structured group reward had a significantly greater learning score mean than the exp. group with a teacher-structured individual reward.

614. EVANS, C. William. *Skier fall classification and causation in multilevel abilities*. M.A. in Recreation Education, 1972. 59 p. (B. K. Olsen)

BYU students enrolled in the spring semester ski school for 1972 were observed during the learning process in which 402 ski falls were randomly selected and recorded. Based on the findings, an adequate skier fall classification system has been developed for future use. Fifty % of the falls recorded for both ability levels were due to the skier sitting back on his skis; this was directly responsible for the most common type of ski fall: the backward fall. The (A&B) skier ability level as compared to the (C&D) ability level accounted for the majority of falls on ski slopes. Approximately 70% of the falls were observed on moderate slopes and were recorded for both sexes and ability levels.

615. FULLER, Gary W. *An evaluation of physical education programs for boys in selected junior high schools of Kern County, California*. M.S. in Physical Education, 1973. 166 p. (J. R. Jones)

Conclusions after careful examination of the data were: in a majority of the schools evaluated, there was a definite lack of indoor facilities; the results of the study indicate that the schools with the best facilities had the best programs; all the schools had weak or nonexistent intramural programs; results indicate that physical education is an important facet of total education in Kern County. It is proposed that, because schools with the best facilities had the best programs, additional funds should be allotted to indoor and outdoor facilities; the purchase of additional equipment will contribute to a more stable and successful program; teachers employed for the physical education program should be properly trained and certified in physical education.

616. GOSSENS, Thomas F. *The contribution of jogging as taught at Brigham Young University toward the development of strength and endurance*. M.S. in Physical Education, 1972. 68 p. (P. F. Allsen)

The study was conducted with 62 male Ss, 40 of which were in a control group and 22 of which were in an exp. group. The control group did not participate in PE classes, while the exp. group participated in jogging classes during the fall semester of the 1971-72 school year at BYU. Conclusions: jogging as taught at BYU does not contribute toward the development of strength; and jogging as taught at BYU does not contribute toward the development of endurance.

617. GROVER, Ronald A. *A study of the human resources available to a community school program in Tooele, Utah*. M.A. in Recreation Education, 1973. 67 p. (B. F. DeHoyos)

A total of 200 homes was randomly selected from the community. Each S completed a questionnaire indicating his preference to teaching a specified skill, times he would teach, cost of his services, and personal data. The results of the analysis showed that the typical prospective teacher for a community school program in Tooele, Utah, is a female between the ages of 21 and 50. She will be caucasian, U.S., and be a member of the middle class, earning less than \$11,000 a year. She will most likely donate her teaching time, but will not want more than \$3 an hour for pay. She will teach between 2 and 4 hr-wk, will prefer teaching Tuesdays, during the summer. This teaching experience will be the first experience she has had with the community school program.

618. GUNHEIL, Reid J. *Biographies of historical leaders in physical, health, and recreation education*. Ed D. in Physical Education, 1973. 440 p. (E. S. Roundy)

In 1949, David K. Brace, under the auspices of the American Academy of PE, selected 102 outstanding leaders in health, physical, and recreation education and compiled a brief filecard of vital statistics on each person. Listed in chronological order, this study considers those individuals in Brace's study who were born between 1893 and 1909, inclusive. Based on accepted historical research procedures, a biographical synopsis was written on each of the 34 selected leaders. Each synopsis contains a picture and a list of vital statistics of the personality being considered, followed by a concise narrative depicting his professional life and contributions.

619. HALEY, H. Robert. *The effects of warmup on the two hundred meter freestyle*. M.S. in Physical Education, 1973. 159 p. (R. Bestor)

Age group swimmers (N = 28) served as Ss. Each participant completed 5 trials following 3 warmup procedures. The warmup procedures used were, no warmup, sprint warmup, and continuous warmup. Five measurements (pulse rate, systolic and diastolic blood pressure, and oral and rectal temperatures) were secured following each warmup procedure and performance. Performance times were recorded following

each performance. The recorded measurements were used to determine the effects of the warmup procedure that preceded the performance. The findings of this study show that warmup does affect many of the body functions. Yet, the study indicated that the warmup procedures used had little or no significant effects upon the subsequent performance of the 200-m. freestyle.

620. HARRISON, Joyce M. *A comparison of a videotape program and a teacher-directed program of instruction in teaching the identification of archery errors*. Ed.D. in Physical Education, 1973. 120 p. (L. Holbrook)

The study included 4 groups of PE majors—2 of archery classes and 2 of nonarchery classes. One group from each pair was instructed with the videotape unit; the other served as a control group. All 4 groups were tested with the criterion test. Evaluation techniques included a *t* test for the difference between the means and a comparison of the number of students achieving mastery on the criterion test. The results showed that none of the nonunit instructed, nonarchery students achieved mastery on the unit; without instruction, a majority of students could not pass the criterion test; unit-instructed archery and nonarchery students learned significantly more than teacher-directed archery students at the .001 level of confidence; and there was no significant difference in the learning achieved by archery and nonarchery students instructed by the unit.

621. HEIN, Wilma S. *A survey to determine the status of the secondary health and physical education program in the districts and islands in the State of Hawaii*. Ed.D. in Physical Education, 1972. 201 p. (B. Jarman)

The LaPorte Score Card was the instrument selected for tabulation. A supplemental questionnaire was also utilized. Secondary schools ($N=29$) within the State of Hawaii were selected randomly to participate in the survey. Comparisons were made between districts, islands, and the Fossum Study. It was found that the State of Hawaii had improved in its health and PE program since the Fossum Study was taken. The Islands of Oahu and Maui scored highest. HSs were found to be more effective than intermediate and combination schools. In the 10 areas surveyed in PE, 7 rated fair, 2 rated effective, and 1 rated very poor.

622. HENRY, Sandra L. *A comparison of normals and retardates on depth perception and convergence test*. M.S. in Physical Education, 1972. 36 p. (C. B. Call)

Five trials were given on the depth perception test with time between each trial. Three consecutive trials were given on the convergence test. The results revealed that there was no significant difference between the 2 groups on depth perception ($p>.05$). There was a significant difference on the convergence test ($p<.05$) with the normal having the better performance. Depth perception may be learned through practice, while convergence seems to be a conditional behavior.

623. HUGHES, Robert R. *Physical fitness activities for Latter-day Saint missionaries*. M.A. in Recreation Education, 1972. 64 p. (C. T. Thorstenson)

Two groups, a control and exp., were selected from the missionaries entering the Language Training Mission on February 16, 1972. The exp. group ($N=32$) participated in a structured physical fitness class for 7 wk. The control group ($N=20$) participated in no structured program. Each group took a pre- and posttest consisting of 4 strength factor tests and Cooper's 12-min. run. Findings of the study suggested no significant difference between the exp. and control groups for the shuttle run, hand grip, and 12-min. run. An ANOVA showed a significant difference for the softball throw and pull-ups and the ($p<.01$). ANOVA showed a significant difference at the ($p<.05$) between the groups for the 4 strength factor tests.

624. HUNTER, Don E. *A determination of behavioral objectives on drug abuse education for an introductory college health course*. M.S. in Health Science, 1972. 94 p. (A. L. Thygeson)

The opinions of college health instructors and professional health personnel as to which behavioral objectives should be included in the course were compared. A questionnaire instrument was developed and administered to the 2 groups of judges. Analysis provided "mean" ratings, and *t* test values on each of the proposed objectives. The data indicated that 21 of the objectives were recommended for the course after receiving the least minimal rating possible from both groups of judges. Agreement of opinions between the 2 groups was noted through *t* test analysis except on 2 objectives. The findings of this study are recommended as a guide in determining the behavioral objectives for a freshman college health course in drug abuse education.

625. HYATT, Claudia J. *Femininity in physical education: A proposed course outline*. M.S. in Recreation Education, 1973. 180 p. (C. R. Jensen)

Data on all aspects of personal improvement were gathered from every available source and compiled in a narrative analysis, divided into individual sections, and printed in the form of a thesis. It was concluded that there was a great deal of valuable information available for compilation of the specified manual, all of which was thoroughly researched, recorded, and adequately documented. It was recommended that a class in enhancement of femininity for women PE teacher candidates be considered, and that the material compiled in this research be available as the main resource manual for the proposed course.

626. JAMESON, David G. *The contribution of fencing toward the development of strength and endurance*. M.S. in Physical Education, 1972. 78 p. (P. E. Allsen)

Sixty-seven male Ss. 40 in a control group and 27 in an exp. group were tested. The control group did not participate in PE classes while the exp. group participated in beginning fencing during the spring semester of the 1969-70 school year and the fall semester of the 1971-72 school year at BYU. Conclusions: fencing, as taught at BYU, contributed toward the development of left and right grip strength; fencing, as taught at BYU, did not contribute toward the development of overall strength; and fencing, as taught at BYU, did not contribute toward the development of endurance.

627. JENSEN, Barbara R. *A statistical analysis of the difference between grade point average the semester students are enrolled in physical education and the semester they are not enrolled in physical education*. M.S. in Physical Education, 1973. 35 p. (B. Jarman)

The semester GPAs for each student were obtained on computer cards. Students ($N=50$) from each of the 12 secondary PE teachers in the Provo City School District were randomly chosen. The ANOVAR Computer Program was used to obtain an ANOVA table. At the .05 level, students had a significantly higher GPA the semester they had PE. The variables of school and student, and the interaction between sex and PE/no PE were found to be significant ($p < .01$), ($p < .05$).

628. JOHNSON, John K. *A comparison of the availability and extent of use of public school facilities for community recreation in the state of Utah from 1969 to 1972*. M.A. in Recreation Education, 1973. 159 p. (C. T. Thorstenson)

During October and November, 1972, the principals of the public schools selected to be studied were interviewed to obtain data relative to the availability and community use of public school facilities. The study indicated that there was a 6% increase in the school facilities available for community use since 1969, with greater increases in this area shown by JH and ELE schools than by SHSs. All school facilities averaged an increase in community use since 1969. The study showed that ELE schools and JHSs had a greater increase in the community use of their school facilities than did the SHSs. The attitudes of school officials toward groups using school facilities changed from "good" in 1969 to "excellent" in 1972.

629. JOHNSON, Kim M. *An evaluation of various factors contributing to participation in European Health Spas*. M.A. in Recreation Education, 1973. 107 p. (B. F. DeHoyos)

A questionnaire was constructed to gather data about participation in the Health Spa. The questionnaire was then personally administered to a randomly selected group of 100 male and 100 female Spa members. The data collected indicated that the majority of Spa members are married. The educational level of the members had little to do with their activity. Most members attend the Spa once a week or more. The largest percent of inactive and dissatisfied members came from the 13-24 mo. membership group. Both the male and female members rated the Spa facilities quite high but are anxious to see the Spa incorporate more vigorous activities such as handball, paddleball, and tennis into their program.

636. KANE, Norman H. *Procedures used in football scouting at selected high schools*. M.S. in Physical Education, 1972. 73 p. (P. E. Allsen)

Class A HSs ($N=38$) in Utah were studied. A questionnaire was sent to the head football coach at each selected school. All the questionnaires were returned and analyzed. Scouting was found to be very valuable to the HS coach and his football program. The scouting was done by the majority of the assistant coaches utilizing their own printed form. Most scouts scouted each team twice during the season. Scouts attempted to determine individual strengths and weaknesses of the players, and offensive and defensive tendencies utilized during specific game situations. The most important defensive information was the goal line defense utilized. Blocking the point, point after touchdown, and field goals were essential knowledge in the phase of kicking. The summarized scouting report was given to the players verbally.

631. KOEHLER, Gretchen M. E. *Agents who have influenced women to participate in intercollegiate sport*. M.S. in Physical Education, 1973. 106 p. (L. Holbrook)

Intercollegiate participants ($N = 156$) from 2 private schools and 2 state schools served as Ss. The Ss were divided into 6 groups: state or private schools, individual or team sports, early or late starters. These 6 groups were compared in 3 areas of influence: early encouragement, first teaching of fundamentals, and teaching of strategies. The data were tabulated in frequencies and percents for group and area comparisons. The dominant family and nonfamily agents were also tabulated. The chi-square method of analysis was used to determine any significant differences in the data. A significant difference was found when comparing early and late starters in the area of family and nonfamily encouragement and when comparing early and late starters in the area of family and nonfamily teaching of fundamentals.

632. KOTOWSKI, James E. *The relationship between the running performance time of elementary school children at distances of 600, 900, 1200, and 1500 yards and maximum oxygen intake*. Ed.D. in Physical Education, 1972. 113 p. (E. Roundy)

Third and 4th grade boys and girls ($N = 109$) from 4 ELE schools in Provo, Utah, served as Ss. A maximum VO_2 test and 4 running performance field tests at distances of 600, 900, 1200, and 1500 yd. were administered to each child. The Pearson product-moment correlation technique was used to examine the relationship between the run performance time at each distance and maximum VO_2 . Conclusions: there is a significant relationship between the running performance times of ELE school children at distances of 600, 900, 1200, and 1500 yd. and their VO_2 max. and all 4 field tests are equally effective in the assessment of the cardiovascular fitness level of 3rd and 4th grade school children ($p < .05$).

633. KUNKEL, E. Ralph. *A comparative study of selected senior citizen centers in the western continental United States*. M.A. in Recreation Education, 1972. 84 p. (C. B. Call)

Centers were compared in the areas of administration, facilities, programs, budgets, and the senior citizens who attended in regard to sex, age, attendance, and transportation. Based on the findings of this study, it was concluded that centers with a fulltime director had higher attendance, higher budgets, larger facilities, and were open longer hours. The senior citizens attending the centers relied mainly on their own modes of transportation, and preferred quiet to active programs. Female attendance was twice as large as that of males. A very low percentage of the senior citizens are being reached by the center programs. Also, financial assistance was largely from the local cities.

634. LARSEN, Karl G. *A study of the relationship between recreational involvement and the social behavior patterns of inmates at Utah State Prison*. M.A. in Recreation Education, 1973. 73 p. (C. T. Thorstenson)

Levels of participation were: those actively engaged in stressful sports, those engaged in passive forms of recreation, and those not participating in either active or passive recreation programs. The behavior was surveyed in 2 different groups, which were projected and displayed behavior. The findings of the study indicated no significant difference between the projected behavior and the participation level, but displayed a very high level of significance ($p < .01$) between those participating in some form of recreation and the displayed behavior.

635. LITTLEFIELD, Steven R. *Leisure programs for moderately and severely retarded adults in Utah nursing homes*. M.A. in Recreation Education, 1973. 56 p. (C. T. Thorstenson)

The findings of the study indicated that nursing homes could reduce observable behavior problems of residents significantly by utilizing a greater number of community recreation services. Findings indicated that as expenditures for recreation programming increased, observable behavior problems decreased significantly. Also that as the quality of the program became more sophisticated, the amount of resident habilitation increased significantly thereby suggesting implementation of an intensive therapeutic recreation program administered by a professional recreation therapist.

636. LUNDMARK, Kenneth. *A comparative mechanical analysis of the fosbury flop and straddle styles of high jumping*. M.S. in Physical Education, 1973. 50 p. (E. S. Roundy)

A film was taken of 2 male jumpers representative of the 2 predominating styles and the technically best jump achieved by each jumper as recorded on the film was used for analysis. The results indicated that from a mechanical standpoint the fosbury style is the most effective of the 2 styles studied in making optimum use of the physical laws involved in the high jump in order to achieve the greatest height and bar clearance with the most efficiency.

637. McALLISTER, David R., II. *A functional analysis of the angles of release for a twelve-angle and a three-angle ski binding during typical ski falls*. M.A. in Recreation Education, 1973. 84 p. (B. K. Olsen)

Based on the findings of this study, 3-angle bindings are used more than 12-angle bindings. The binding units release more often than do the heel units. Class A-B skiers incur almost twice as many releases as C-D skiers with forward type falls accounting for most of these releases. More releases occur to the 12-angle than the 3-angle binding. There was no significant correlation between the angle of release, type of binding used, and skier competence. There was no significant correlation between the angle of release, type of binding used, and the type of fall causing that release.

638. MOSES, Jess R. *An analysis of the outdoor education programs of the Alpine, Davis, and Granite school districts*. M.A. in Recreation Education, 1972. 109 p. (B. F. DeHoyos)

The methodology involved 4 steps: 6 specific hypotheses were proposed; 3 checklist-style questionnaires were constructed; the questionnaires were administered to students and teachers in the desired outdoor education programs, and to 8 school district superintendents in Utah valley; and the data from the questionnaires were analyzed and presented in the form of tables and correlation matrices. The study revealed that both students and teachers prefer the outdoor education program over the indoor classroom, that there are not a sufficient number of school camps where outdoor education programs can be conducted, that outdoor education programs offer a greater learning experience for students than do the indoor classroom programs, and that there is a present trend toward an increase in outdoor education programs on the secondary school level. It was recommended that school districts provide more extensive outdoor education programs with school camp facilities, and that credit and grades be given to the participants in these outdoor education programs.

639. MUSICK, Glenn. *The history of surfing*. M.S. in Physical Education, 1972. 66 p. (B. Jarmar)

This study covered many of the major aspects of the sport of surfing, including a comprehensive history from ancient Hawaiian times until the present. Personal experiences and observations were included to add interest and depth to the more recent developments in surfing and surfboard development.

640. NELSON, Allen E. *A biographical analysis of historical leaders in health, physical education and recreation*. Ed.D. in Physical Education, 1972. 483 p. (M. F. Hartvigsen)

In 1945, David K. Brace, under the auspices of the American Academy of PE, selected 100 outstanding leaders in health, PE, and recreation and compiled a brief filecard of vital statistics on each person. Listed in alphabetical order, this study considers those individuals in Brace's study who were born between 1874 and 1892, inclusive. Based on accepted historical research procedures, a biographical synopsis of each of the selected leaders was written. Each synopsis contains a picture and a list of vital statistics of the personality being considered, followed by a concise narrative describing his professional life and contributions.

641. NIELSEN, Marvin K. *A program evaluation of nursing homes in Utah County, Utah*. M.S. in Health Science, 1973. 76 p. (S. W. Heiner)

A questionnaire was developed by the author for gathering the data and a correlation with literature was drawn, to make the evaluation. From the evaluation of the literature and data collected, evidence indicated strength in safety features but weaknesses in many other aspects of the program as of September, 1972. The major recommendations made to the nursing homes included: higher level educational requirements for nursing home administrators; that policies and objectives on patient care be written out; more effective accounting procedures; stimulate outside interest through public relations; and give written job descriptions for staff personnel.

642. OLSEN, Donald C. *The effects of stress situations on the heart rates of selected football coaches*. M.S. in Physical Education, 1973. 75 p. (P. E. Allsen)

ANOVA and the *t* were utilized to find any significant differences between the HR responses of 2 coaches during 3 football games. Conclusions in the study were: the null hypothesis was rejected as there was a significant difference in stress HRs for the offensive and defensive coordinators; mean stress HRs were high enough to indicate a possible stress on the cardiovascular system of the selected coaches; during combined offensive situations, the offensive coordinator had a higher mean HR than the defensive coordinator; and during combined defensive situations, the defensive coordinator had a higher mean HR than the offensive coordinator.

643. PEASE, Arthur J. *Education, experience and function most desired of community-school directors as stated by selected school superintendents, principals, community-school coordinators and community-school directors*. M.A. in Recreation Education, 1972. 80 p. (J. K. Rogers)

This study was the result of the need to establish guidelines for the student desiring to enter the field of Community Education, community education program development in institutions of higher education, and a possible set of criteria to be used in the establishment of a state Community-School Director certificate. The research design called for a population survey of Utah superintendents, principals, coordinators, and directors who were involved in community education. The findings were: superintendents were prone to choose and rate dissimilar to coordinators, principals, and directors; and the directorship is an administrative position demanding special training, functions, and fulltime work allotment.

644. PETERSON, Russel M. *A study to investigate the awareness of snowmobile owners in regards to areas, facilities, and their attitudes toward snowmobile legislation*. M.A. in Recreation Education, 1972. 79 p. (B. F. DeHoyos)

Based on the findings of the study, the majority of the owners were only slightly acquainted with snowmobile regulations. The study indicated the majority of the sample population had a positive attitude toward environmental control. The study also indicated the majority of respondents were not willing to have snowmobiling restricted to specific areas. Snowmobile rangers and participants felt the snowmobile had no adverse effect on the environment.

645. PETTY, Neil C. *Participant profile and reaction to the recreation programs at Brian Head Resort*. M.A. in Recreation Education, 1972. (C. T. Thorstenson)

A survey was taken to analyze economic, social, and geographic characteristics of people involved in recreation at Brian Head. The study indicated that mostly professional people frequented the resort. Most were single persons between the ages of 20 and 24 who came to Southern Utah primarily for the purpose of skiing and planned to stay 2 or 3 days. The study showed that most participants came from Southern California and most were in the middle income bracket. An overwhelming number of participants judged Brian Head and its recreational facilities to be desirable.

646. PRATT, Le Etta. *A history of the Health Science Department at Brigham Young University*. M.S. in Health Science, 1973. 162 p. (D. D. Shaw)

Through utilization of the library, interview, and questionnaire techniques, it has been determined that: curriculum has increased consistently to the present offering of 68 classes available for health credit; major and minor courses of study leading to undergraduate and graduate degrees are now provided by the Health Science Department; the Health Science Department faculty has enlarged to 17 fulltime faculty, all professionally trained for health instruction; enrollment has increased by almost 5,000 students and from 1 to 96 majors in health classes; health instruction is now centralized in the Richards PE Building.

647. ROELOFS, Morley D. *A feasibility study for a community-school in Lethbridge, Alberta*. M.A. in Recreation Education, 1972. 95 p. (B. F. DeHoyos)

This study was conducted in the Galbraith School Community, Lethbridge, Alberta. Adult Ss ($N=191$) were randomly selected from the area, along with the 20 teachers of Galbraith School. Each of the residents contacted was asked to complete a questionnaire regarding preference in specific recreational activities, projected level of participation, and personal data. The teachers were asked questions to determine attitude and compatibility with the community-school concept. The data were analyzed by means of Correlation Analysis. Results of the questionnaire showed relatively high correlation between participation and age as well as education and desire for participation. The teacher's questionnaire showed a relatively high correlation between sex and community use of schools, as well as age and familiarity with the community-school concept ($p<.05$). Conclusions drawn were that a community-school program could successfully be held at Galbraith School.

648. RYAN, Nicholas F. *A comparison of traditional and recreational methods of instruction for the determination of achievement and retention in eighth grade history students*. M.A. in Recreation Education, 1972. 128 p. (B. F. DeHoyos)

Each class was taught with a different method. Recreational methods consisted largely of review games. Findings of the study suggest that games promote achievement and retention, though significance was achieved in only 3 of 12 tests applied ($p<.05$). Correlation coefficients were significant for most tests between the following variables: academic achievement, mental maturity, socioeconomic status.

649. SCOTT, David E. *A comparative analysis of the quadriceps femoris with an emphasis on the vastus medialis*. M.S. in Physical Education, 1972. 80 p. (R. S. Francis)

The vastus medialis was under investigation to determine its function during the last 15° of leg extension. Ss ($N = 20$) were randomly assigned to use a "Universal GYM thigh and knee machine." Group I ($N = 10$) lifted weights through 180° of leg extension. The remaining group ($N = 10$) was limited by a steel cable from lifting beyond 165° of leg extension. ANOVA tested out significance. Conclusions: the greatest stress, during the last 15° range of motion, for the knee joint, was on the vastus medialis; greater hypertrophy gains were made by the treatment group which lifted a full extension, with less total weight moved; hypertrophy in this study was inversely proportional to mechanical advantage; and the vastus medialis hypertrophied due to its mechanical disadvantage.

650. SEAMONSON, Kay S. *Norwegian folk dancing: Ten dances in teachable form*. M.A. in Physical Education, 1972. 86 p. (L. Holbrook)

The writer travelled to Norway in the summer of 1971 and visited folk dance performances throughout Norway. During this time, dances were filmed, music taped, and interviews with dancers and directors were held. Exact figure sequence, rhythmic pattern, source, and title were obtained by this method of investigation. Ten Norwegian folk dances have been selected and a text has been prepared illustrating the dance movements through diagrams describing the procedure and sequence and providing rhythmic cues.

651. SIAL, Sakina A. *Historical, cultural and religious factors of Pakistan society influencing physical education*. M.Sc. in Physical Education, 1972. 74 p. (L. Holbrook)

Since the emergence of Pakistan as a nation in 1947, it has undergone many political crises. Various governments have come into power. These governments have not had enough time and stability nor enough finances to divert from other fields to the cause. People of Pakistan do not like their girls to go to school or play in the fields with a tight dress. The prevailing religion is Islam. Moslem men cannot see them as they are required to wear a dress that covers them. There is no significant statistical correlation between HS marks and games marks. The prevailing attitude of the people that students participating in games and sports are never academically able is not supported by the data on this study. Recommendations are made for the improvement of PE programs in Pakistan.

652. TOBLER, Robert W. *A comparison of heart rate response in selected running events*. M.S. in Physical Education, 1972. 61 p. (P. E. Allsen)

Findings were based on HR records obtained, by means of radiometry, from 10 BYU athletes as they competed in their running specialties. Three statistical procedures including ANOVA, ANCOVA A with resting HR as the covariate, and ANCOVA B with maximum HR as the covariate, failed to show any significant difference between HR response to the selected running events.

653. TOMLINSON, Stephen C. *A comparison of the effectiveness of three different teaching methods used in the activities for fitness program at Brigham Young University during spring semester 1971*.

Seventy-two male Ss, 20 Ss in group I, 29 Ss in group II, and 23 Ss in group III were tested. Each group participated in a prescribed program during the spring semester, 1971. The Oregon Simplification Strength Index, a written test, and Kenyon Attitude Toward Physical Activity Scale were the criteria used to measure significant differences in teaching methods. These tests were administered at the beginning and end of the semester. It was concluded that the lecture teaching method did contribute to a proper behavior change in total overall physical fitness.

654. TUOMINEN, A. Jaakko U. *A teaching manual for team handball*. M.S. in Physical Education, 1972. 113 p. (E. Roundy)

The literature and the author's experience provided the basis for the data concerning the basic skills and tactics of offense and defense of team handball. These were illustrated with photographs and drawings. This guide is an effective source of information for teachers, coaches, and players of team handball, who are at the beginning and intermediate levels. It is recommended for use in units on team handball in PE classes and in intramural, club, and extramural programs. The techniques, drills, and formations presented are suitable for both sexes.

655. UZELAC, Robert M. *A recreation interest and participation study for the city of Provo, Utah*. M.S. in Physical Education, 1972. 110 p. (C. R. Jensen)

The most desired recreational activities of school children ($N = 600$), 7th through 12th grades, were deter-

mined. Participation in programs was compared by sex, age, and socioeconomic status. Statistical Correlation Analysis gave empirical support to the main proposition of the study. The findings proved that there does exist a relationship between recreational interests and participation, and the factors of age, sex, and socioeconomic status of the youth of Provo, Utah.

656. VAN WIEREN, Glenn L. *A comparison of elementary physical education programs instructed by classroom teachers and programs instructed by classroom teachers consulting with physical education specialists*. Ed.D. in Physical Education, 1973. 116 p. (R. M. Barker)

The relationship between muscular strength and endurance, cardiovascular endurance, kicking, throwing, and running abilities with reference to comparing students participating in a program instructed by a regular classroom teacher and those students taught by a combination instructional program, and comparing boys and girls participating in the 2 instructional programs was conducted. Findings were based on 7 tests measuring the physical fitness and motor skill components of 382 5th grade children. Resulting data were analyzed by the Modified Abbreviated Doolittle Technique ($p < .05$). Conclusions: children in a combination instructional program demonstrated significantly greater muscular strength and endurance, cardiovascular endurance, and throwing, kicking, and running abilities than comparable students in a classroom teacher directed program; and in both instructional programs, the boys performed significantly better than the girls.

657. VELASCO, Pedro, Jr. *A comparative study of the effectiveness of two overhand serves utilized in volleyball*. M.S. in Physical Education, 1972. 58 p. (J. R. Jones)

The American Overhand Floating Serve and the Japanese Overhand Floating Serve were compared. Two methods were used in determining the findings. The first method was to determine the effectiveness of the 2 serves on individual players. The second method was to determine the effectiveness of the 2 serves on a 6-man team in various receiving formations. A 10-point rating scale was used. Conclusions: there is no difference between the American Overhand Floating Serve and the Japanese Overhand Floating Serve to an individual player; and the Japanese Overhand Floating Serve was more effective than the American Overhand Floating Serve on a 6-man team.

658. WARDLE, Robert M. *Motivational factors influencing participation in intramurals*. M.A. in Recreation Education, 1972. 71 p. (B. F. DeHoyos)

Age, class status, marital status, and GPA of 240 fulltime student participants were examined to determine the relationship of these characteristics of the sample to selected intrinsic and extrinsic motivational factors. The data collected indicated that intrinsic motivational factors were more influential upon a student's decision to participate in intramurals than were extrinsic motivational factors. The means on the extrinsic scale of motivational factors was slightly higher for married students than for single and this mean also increased as a participant progressed from fresh. to graduate. Extrinsic motivation of older students was not significantly greater than for younger students. Enjoyment of competition was rated as the most influential motivational factor by the sample population.

659. WHITE, Alice E. *An assessment of student leadership development in a junior high school physical education program*. M.S. in Physical Education, 1972. 65 p. (L. Holdbrook)

The study was conducted during the fall semester of the 1971-72 school year with 9th grade girls. The control group consisted of 24 girls involved in a program which allowed minimum experiences in leadership development. The exp. group of 128 girls had many planned opportunities for experiences to develop leadership qualities. A pre- and posttest were given to each S. The S's test included 3 types of evaluation; a self-evaluation and 2 peer evaluations. A teacher evaluation of each student through a behavior rating was also included in the study. ANOVA was used to find the differences between the exp. and control groups. The results of the study showed that there was a significant difference in the social distance area of the exp. group. The study seems to indicate that the exp. group was more homogeneous than the control group.

660. WILLDEN, Gary D. *An analysis of the self-concept changes occurring in youth participants in the Kearns Community School survival adventure program*. M.A. in Recreation Education, 1973. 63 p. (C. T. Thorstenson)

Self-concepts were measured before and after a 6-day outdoor survival adventure program. The hypothesis tested in this study was that there would be no difference in the participants' self-concepts after having experienced a 6-day survival adventure program. To test this assumption, 2 nationally standardized instruments, the Tennessee Self-Concept Scale and the Personal Orientation Inventory were selected. The results of the posttests indicated that apparently a 6-day survival adventure program similar to the 1 conducted

will produce no significant change in one's self-concept as measured by the 19 scales of the Tennessee Self-Concept Scale and the 12 scales of the Personal Orientation Inventory.

661. AUSTIN, Dean A. *Leader behavior perceptions and interpersonal needs of athletic directors*. Ph.D. in Physical Education, 1973. 116 p. (O. N. Hunter)
662. BEDROSIAN, Samuel S. *Athletic administrative practices in selected small private colleges in Illinois*. Ph.D. in Physical Education, 1973. 176 p. (O. N. Hunter)
663. BLACK, Kenneth I. *The effect of programmed instruction in teaching bowling*. M.S. in Physical Education, 1972. 115 p. (L. E. Griffin)
664. BURNETT, Johnny M. *A comparative study of personality assessment ability of coaches versus players' actual scores*. M.S. in Physical Education, 1972. 52 p. (L. E. Griffin)
665. CARLSON, Gerald P. *Perceptions of physical education chairmen as leaders*. Ph.D. in Physical Education, 1973. 128 p. (O. N. Hunter)
666. COLLINS, Gary W. *An investigation of the environmental image of Ottawa University*. Ph.D. in Physical Education, 1973. 144 p. (L. E. Griffin)
667. COMPTON, David M. *A linear model for individual treatment in therapeutic recreation*. Ed.D. in Leisure Studies, 1973. 238 p. (L. R. Rockwood)
668. COX, Roger W. *An investigation and comparison of selected state and local officials' agreements of disagreement concerning the community school concept*. Ph.D. in Leisure Studies, 1973. 276 p. (L. R. Rockwood)
669. CRACRAFT, Joseph D. *The training effect of static and dynamic exercises on the neuro-regulatory behavior of neuromuscular units in the human Tibialis Anterior muscle*. Ph.D. in Physical Education, 1973. 189 p. (K. P. Henschen)
670. DONLAN, Robert E. *Survey of selected factors influencing high school athletic coaches*. Ph.D. in Physical Education, 1973. 192 p. (O. N. Hunter)
671. DOTSON, Larry A. *The effects of copper bracelets on rheumatoid arthritis*. Ph.D. in Health Science, 1973. 130 p. (M. W. Kreuter)
672. GABRIEL, Howard W. III. *Hyperthermic vectors as etiological factors in oligospermia*. Ph.D. in Health Sciences, 1972. 152 p. (N. E. Randall)
673. GATES, Ward K. *Personality traits of athletic coaches and prospective coaches*. Ph.D. in Physical Education, 1972. 132 p. (K. P. Henschen)
674. GREENE, Jerry L. *Effects of a prescribed physical education program upon movement characteristics of four-year-old boys and girls*. Ph.D. in Physical Education, 1973. 170 p. (L. E. Griffin)
675. GUYTON, Rick G. *A multimedia self teaching package for family practice education*. Ph.D. in Health Sciences, 1973. 143 p. (M. W. Kreuter)
676. HUGHES, Carol A. *A comparison of the effects of four teaching techniques of body conditioning upon physical fitness and self concept*. Ph.D. in Physical Education, 1973. 116 p. (L. E. Griffin)
677. HUMPHREY, Nyles R. *Cardiovascular and respiratory adaptations occurring during second wind*. Ph.D. in Physical Education, 1973. 69 p. (R. O. Ruhling)
678. JACOBSEN, Michael G. *Legal implications of trespass in recreation*. M.S. in Leisure Studies, 1972. 121 p. (L. R. Rockwood)

679. JOHNSON, Ralph A. *Knowledge of and attitude toward sexuality as variables in satisfactory and dissatisfactory marital relationships*. Ph.D. in Health Sciences, 1972. 121 p. (C. O. Ness)
680. JORNDT, George T. *The effects of exercise on ankle flexibility and on three swimming kicks*. Ph.D. in Physical Education, 1973. 88 p. (N. P. Neilson)
681. KOLLIER, Ronald D. *The availability and extent of use of public school facilities for community recreation in Alabama*. Ph.D. in Leisure Studies, 1973. 219 p. (L. R. Rockwood)
682. KUMMER, William G. *Status of intramural-recreation programs in selected Iowa Colleges*. Ph.D. in Leisure Studies, 1973. 249 p. (S. Rubio)
683. LAFFERTY, Gerald F. *Development and assessment of a video cassette self teaching patient education program in dental health*. Ph.D. in Health Sciences, 1973. 103 p. (M. W. Kreuter)
684. LINFORD, Howard G. *The social stratification of selected football athletes*. M.S. in Physical Education, 1973. 78 p. (L. E. Griffin)
685. LUCENKO, Leonard K. *The availability and extent of use of public school facilities for community recreation in New Jersey*. Ph.D. in Leisure Studies, 1972. 184 p. (S. Rubio)
686. MACHNIK, Joseph A. *Recreation in planned retirement villages*. Ph.D. in Leisure Studies, 1973. 182 p. (S. Rubio)
687. MARTIN, John L. *Relationship of selected biological rhythms to performance of competitive swimmers*. Ph.D. in Health Sciences, 1973. 122 p. (M. W. Kreuter)
688. MCKILLIP, William L. *A score card for evaluation of men's intramural programs in four year colleges and universities*. Ed.D. in Physical Education, 1973. 276 p. (L. E. Griffin)
689. MISNER, Jerold C. *The effect of competition upon the swimming performance of high-, medium-, and low-anxious subjects*. Ph.D. in Physical Education, 1973. 95 p. (K. P. Henschen)
690. NAYLOR, Jay H. *The attitudes of senior citizens in Utah County, Utah, toward social recreation according to sex and socio-economic status*. Ed.D. in Leisure Studies, 1973. 112 p. (J. L. Squires)
691. PATE, Donald W. *The relationship of selected psychological measures to wrestling performance*. Ph.D. in Physical Education, 1972. 84 p. (L. E. Griffin)
692. PEAVY, Robert D. *History of the American Academy of Physical Education, 1926-1950*. Ph.D. in Physical Education, 1973. 278 p. (N. P. Neilson)
693. REEVES, Ray A. *Personality differences between athletic and non-athletic inmates at the state prison in Utah*. Ph.D. in Physical Education, 1973. 148 p. (L. E. Griffin)
694. REITER, Mary J. *Effects of postural training on self concept of selected college women*. Ph.D. in Physical Education, 1972. 77 p. (L. E. Griffin)
695. RIDER, Virginia J. E. *Personality traits of physical education teachers and majors*. Ph.D. in Physical Education, 1973. 203 p. (L. E. Griffin)
696. RIDER, Richard H. *The influence of basketball coaches on their players' personalities*. Ph.D. in Physical Education, 1973. 80 p. (K. P. Henschen)
697. SLAVICH, Sandra L. *Olympic games at Munich-Politics and nationalism*. M.S. in Health Sciences, 1973. 80 p. (J. R. Ewers)
698. SMITH, Brent E. *The relationship of personality traits to ratings of basketball officials*. M.S. in Physical Education, 1972. 81 p. (O. N. Hunter)

699. ULRICH, Richard P. *The effect of hypnotic and nonhypnotic suggestions on archery performance*. Ph.D. in Physical Education, 1973. 93 p. (J. R. Ewers)
700. VAN DAM, Ronald L. *The effects of different types of athletic tape composition upon selected motor skills*. Ph.D. in Physical Education, 1973. 98 p. (R. O. Ruhling)
701. VAROZ, Reynaldo O. *The relationships of sports interest and physical fitness to self-concept*. M.S. in Physical Education, 1972. 70 p. (L. E. Griffin)
702. VERNACCHIA, Ralph A., Jr. *Case profiles of track athletes*. Ph.D. in Physical Education, 1973. 127 p. (K. P. Henschen)
703. WRIGHT, Paul T. *Personality traits of athletes in selected field events*. Ph.D. in Physical Education, 1973. 126 p. (L. E. Griffin)
704. ZIATZ, Daniel H. *The effect of a public relations program on parental attitudes toward Physical Education*. Ph.D. in Physical Education, 1973. 127 p. (J. R. Ewers)
705. ZORN, Willis L., Jr. *Relationship of drug involvement to drug knowledge, self-concept and selected demographic variables*. Ed.D. in Physical Education, 1973. 102 p. (M. W. Kreuter)

Central Washington State College, Ellensburg, Washington

(J. M. Pearson)

706. ANDREW, Fred M. *Effect of physical conditioning and body weight changes among college wrestlers as shown by selected cardiovascular variables*. M.Ed. in Physical Education, 1973. 84 p. (R. N. Irving, Jr.)

The association between body weight changes and 10 measures of cardiovascular performance among varying numbers of wrestlers of the 1971-72 CWSC varsity team was nonparametrically analyzed 5 times during the season, using the Cameron heartometer. Wrestlers were also compared at each test session to a normative group on which the original heartometer norms had been established by Cureton in 1946. At the first test wrestlers were significantly different from the normative population only in pulse rate and rest-to-work ratio ($p < .01$). In subsequent tests they were significantly superior in 7 of the 10 variables ($p < .01$). No systematic significant association was found between body weight changes and cardiovascular performance.

707. DELAY, Mary E. *An investigation of the influence of wrist restriction in shot putting among selected grade levels of male and female subjects*. M.Ed. in Physical Education, 1973. 38 p. (R. N. Irving, Jr.)
708. DENDURENT, Carol G. *The effect on perception of viewing a videotape replay of a selected gymnastic skill*. M.Ed. in Physical Education, 1973. 52 p. (R. N. Irving, Jr.)
709. KLOVDAHL, David Carl. *A comparison of intelligence and motivation with basketball ability*. M.Ed. in Physical Education, 1973. 30 p. (E. A. Irish)
710. LAND, Jill D. *Comparison of health characteristics found among six selected migrant groups in primary grades*. M.Ed. in Health Education, 1973. 130 p. (J. M. Pearson)

Kindergarten through 3rd grade migrant students ($N = 212$) from Chelan and Douglas counties (Washington) were placed in groups according to their native ancestry or geographical home; groups were compared by X^2 analysis on 52 health characteristics placed in the following 8 categories: nutrition, emotional health, vision, hearing and speech, dental health, personal hygiene, communicable diseases, and living conditions. Significant differences ($p < .05$) were found for the following: In kindergarten and 1st grade, more Mexican-Americans and fewer Canadian-Indians than were expected showed aggressiveness in school and more American and Canadian-Indians felt accepted by classmates—more Midwest Caucasians than were expected felt accepted by classmates. In the 2nd and 3rd grades more Eastern Caucasians and fewer Mexican-Americans than were expected had sack lunches that contained primarily sweets. More Midwest and Eastern Caucasians and fewer Farwest Caucasians than were expected showed aggressiveness in school. More Mexican-Americans, Midwest Caucasians, and Eastern Caucasians

158 CENTRAL WASHINGTON STATE COLLEGE and UNIVERSITY OF
WASHINGTON

than were expected were disruptive in the classroom. More Canadian and American-Indians and fewer Farwest Caucasians than were expected had very crooked teeth. More Mexican-Americans and Canadian-Indians than were expected had positive tuberculin skin reactions.

711. MERKLEY, Lamont R. *The effect of flexibility on injury prevention in wrestling*. M.Ed. in Physical Education, 1973. 52 p. (E. A. Irish)

University of Washington, Seattle, Washington

(T. L. Doolittle)

712. ATCHISON, Gary B. *A survey of all-weather surfaces used at selected outdoor collegiate track facilities*. M.S., 1973. 191 p. (J. G. Garrick)

This study was designed to determine specifications advocated by manufacturers and athletic department personnel for outdoor track facilities, and to compare related usage factors reported among all-weather surfacing brands. A questionnaire was sent to 70 colleges and 16 manufacturers of all-weather surfacing. Seventy-seven percent of the colleges ($N=54$) and 88% of the manufacturers ($N=14$) returned the questionnaire. These colleges had been selected to include each brand and category of all-weather surfacing in each of the 11 districts established by the U.S.T.C.A. Responses were grouped into 6 categories: synthetic resins, including Tartan, Proturf, Uni-Turf, Elastaturf, Sport-Tred, and "440"; fibrous asphalt compositions, including Grasstex; rubberized asphalt cold mixes, including Perma-Track; rubber-sand-asphalt hot mixes, including Uniroyal, Reslite, Medalist, ME-2, and Para Pave; rubber-cork asphalt compositions, including Rub Kor; and unspecified rubber asphalt mixtures of unknown composition developed by individual colleges. Differences were reported between the categories and brands of all-weather surfacing with regard to climatic influences, maintenance, specifications, usage factors, and wear. A description of the construction of an all-weather track facility is also included in the study.

713. COBBE, Sharon A. *The effectiveness of programmed instruction in the learning of gymnastic skills by high school girls*. M.S. in Physical Education, 1972. (B. J. Purdy)

HS sophomore girls ($N=75$) were pre- and posttested on gymnastic skill and knowledge. During a 6-wk. instructional unit, the control group ($N=25$) received instruction using conventional methods; exp. group 1 ($N=25$) received instruction using programmed gymnastic materials only; and exp. group 2 ($N=25$) received instruction using a combination of conventional and programmed methods. Gymnastic skills were limited to balance beam and uneven parallel bars. ANCOVA was used to determine if significant differences existed among groups on posttest mean scores. Results indicated that programmed instruction as a method by itself or used in combination with conventional methods of instruction is no more effective in the learning of gymnastic skills and knowledges than the conventional method used by itself.

714. DEHN, Michael. *Longitudinal versus cross-sectional sampling for variations in maximal oxygen intake with age and physical activity*. M.S., 1972. 48 p. (T. L. Doolittle)

Max VO_2 was measured in healthy men ($N=86$), 40-72 yr. of age. Forty of these men had previous determinations of VO_2 max an average of 2.3 yr. earlier. Combined cross-sectional data from 17 studies ($N=700$) in the literature revealed an average annual decrement in VO_2 max of $0.40 \text{ ml/kg} \times \text{min/yr.}$ However, the longitudinal data from this investigation indicated an annual decrement of $0.94 \text{ ml/kg} \times \text{min/yr.}$ Similar longitudinal decrements were observed with data adapted from studies by Hollmann (1965) and Dill (1967). Differences between longitudinal and cross-sectional sampling for changes in weight-adjusted VO_2 max with aging relate to uncontrolled population truncation with the latter method resulting in the investigation of unrepresentative samples. Subtle changes in body weight and composition not identified by the cross-sectional design contribute less significantly to the observed discrepancy. Stratification of subjects according to habitual physical activity status revealed that sedentary men experience a threefold greater decline in VO_2 max than habitual participants in weekly running activity. Extrapolation of observed decrements in VO_2 max demonstrated that life-long participation in running activity may extend the productive years of life by 20 yr. or more.

715. DORRANCE, Penny D. *Social facilitation and motor performance: Drive summation or inverted-U?* M.S., 1973. 139 p. (D. M. Landers)

In an attempt to resolve the contradictory social facilitation predictions of drive theory and the inverted-U hypothesis, the principle of summation to manipulate the strength of audience-induced drive was employed by varying audience size from 1 (E only) to 6. Literature has supported the contention that the audience must be evaluative to enhance emission of dominant responses. For most motor tasks, however, the

point at which nondominant correct responses become dominant is obscure. To avoid this learning-performance problem, focus was on initial learning only and tasks employed were dichotomized into a low evaluation potential quantitative task (reaction time) and a high evaluation potential qualitative task (ball rolling). Male undergraduates (N = 96) learned the tasks in the presence of passive female spectators. No hypotheses were generated because of the paucity of evidence supporting both drive theory and the inverted-U hypotheses. To measure arousal, Thayer's Activation-Deactivation Adjective Check List (AD-ACL) and additional questionnaire responses were completed by Ss and audience members. Results indicated that increments in audience size were paralleled by increments in arousal. Ball-rolling performance trends suggested an inverted-U, but performance scores on reaction time were not consistent with either drive theory or inverted-U.

- 716 GREEN, Janette M. *The relative effectiveness of a Perceptual-Motor Program, a Movement Educational Program, and a Traditional Program in the enhancement of motor performance of kindergarten children*. M.S. in Physical Education, 1973. 49 p. (B. J. Purdy)

Three approaches to teaching in the enhancement of motor performance of kindergarten children were used: Movement Education, Perceptual-Motor, and Traditional. Subjects were 52 kindergarten children. A pre- and posttest was administered using a battery of 6 tests: The Modified Basal Balance Test, the Modified Carpenter Mat Test A, the Modified Zone Run, the Holding V-Sit, the Modified Scramble, and the Standing Broad Jump. Posttest scores for all groups were significantly higher than scores on the pretest. ANCOVA revealed that the M scores for the ME group were significantly higher than those of the PM group on all but the MS and the SBJ and were significantly higher than those of the T group on all but the MBBT and the HV-S. The M scores for the PM group were significantly higher than the T group on the SBJ, while the T group was significantly higher than the PM group on the MZR. All 3 approaches were effective in the enhancement of kindergarten children's motor performance. In general the ME approach was more effective than the PM or T approaches. There was no significant difference between the PM and T approaches.

717. LARSEN, Hans J. *A theoretical model for predicting maximal oxygen uptake as a function of training duration*. M.S., 1971. 62 p. (T. L. Doolittle)

The purpose of this study was to investigate the functional relationship between training and oxygen uptake capacity. This relationship was reduced to 2 variables, theoretically, representing percent change in maximal oxygen uptake as a function of training duration. Three mathematical equations with their respective curves were considered. An exp. study was conducted to determine the effect of 8-mo. training on maximal oxygen uptake in 9 age group swimmers. Utilizing the data from the exp. study as the criteria, the 3 theoretical models were tested. Two of the models were in close agreement with the exp. data. The reported research data utilized in these 2 models were combined with the data from the exp. study to derive a modified model. Based on the findings it was concluded that a definable functional relationship exists between training duration and resultant increase in maximal oxygen uptake and further that the theoretical model, $Y = 3.914 + .7488 \cdot 4.5$, adequately expresses the percent increase in maximal oxygen uptake as a function of training duration.

- 718 LINGREN, Cheryl Anne. *Relationship among values of women performers at various levels, and in various forms of activity*. M.S., 1972. 58 p. (B. J. Purdy)

Differences in values held by: (1) women who compete in college extramural sport and nonformalized sport, (2) women who participate in 3 different forms of activity: tennis, basketball, and volleyball, and (3) college women who participate in extramural sport and a general population of college women were examined. Significant differences were found between all the groups with the tennis group having more significant differences.

- 719 OLSON, Karen E. *Interrelationships among self-concepts and performance levels of four racial groups*. M.S., 1972. 76 p. (B. J. Purdy)

One hundred eighty-three 12, 13, and 14-year-old boys and girls completed the University of Washington Word Concept Scale and a battery of motor performance tests. Black, white, Chinese, and Japanese subjects were used. There were no significant differences among race or sex groups in self-concept except that black boys had a more positive movement concept than Japanese girls. There were some significant differences among sex groups in ability to perform some motor tests; in general, boys performed better than girls. There were significant differences between black boys and white boys on the 60-yd. dash, the vertical jump, and the standing long jump. Significant differences were found between black boys and Chinese boys on the 60-yd. dash and the bent arm hang. Significant differences were found between Japanese boys and white boys on the endurance run. There was no relationship between self-concept and motor performance.

720. REYNOLDS, William M. *A history of men's competitive weightlifting in the United States from its inception through 1972*. M.S. in Physical Education, 1973. 240 p. (E. L. Hughes)

European immigrants brought weightlifting to the U.S. in the 19th century. Following A.A.U. acceptance in 1929, the sport has progressed at a steady rate domestically both in quantity and quality of competition through 1972. Internationally, U.S. weightlifting progressed gradually upward from 1932-1948, exhibited a high plateau through 1960, and declined significantly from 1961-1972. Olympic team championships were won in 1948, 1952, and 1956. Robert Hoffman was the dominant figure in the sport during the 1929-1972 period.

721. SIMON, Julie A. *Assessing children's attitudes toward physical activity: Development of an instrument*. M.S., 1973. 166 p. (F. L. Smoll)

A multidimensional semantic differential scale was constructed based on Kenyon's conceptual model for physical activity. Although the format and content of Kenyon's A.T.P.A. scales were closely adhered to, substantial changes in wording were made. Subjects were 992 4th-6th grade ELE school children. Testing was conducted in a collective manner during half hour classroom sessions; approximately 6 wk. later, 407 subjects participated in a retest. Hoyt reliability coefficients for each subdomain ranged from .80 to .89 indicating an acceptable degree of internal consistency for each dimension. Also, correlation coefficients between subdomains indicated that the 6 dimensions of physical activity were relatively independent. In regard to between day reliability, Pearson correlations ranged from .44 to .62; also, a comparison of initial and retest group mean scores revealed identical subdomain rankings and similar mean scores for each dimension. Based on the findings, the instrument was deemed appropriate for group testing with 4th-6th grade children.

722. SULLIVAN, Valerie L. *Effectiveness of using the videotape recorder in improving vaulting skills*. M.S., 1972. 51 p. (B. J. Purdy)

Five vaults (squat, flank, front, wolf, straddle) were presented to 34 JHS girls in a traditional teaching manner. The same vaults were presented to 38 JHS girls who received traditional instruction but in addition, viewed on videotape, analyzed, and discussed their vaulting skills. Each group was allowed an equal amount of physical practice time for all vaults; i.e., the E Group's viewing time was not subtracted from their practice time. Repractice was an integral part of the study. Skill level achieved was evaluated by two experienced gymnastic judges on the 17th and 18th days of the study. Analysis of the scores revealed no significant differences between group means for any 1 vault or for the total scores.

723. WAGONER, Penelope C. *A content analysis of human movement phenomena in a selected sample of science fiction literature*. M.S., 1973. 78 p. (V. M. Waltz)

References to movement were analyzed in 16 Hugo and Nebula award-winning science fiction books published between the years 1953 and 1972. Data was organized in a working structural and functional framework consisting of 3 areas: competitive forms, expressive forms, and conceptions of the significance of human movement. Both direct and inferred references were noted. Subareas were identified within the major categories. The study's findings were concerned with the areas in the analytical framework in terms of prevalence in as well as among areas and with the amount and kinds of data found in this type of literature. Data was discussed comparatively within areas as well as between areas. For example, competitive forms were mentioned more frequently than expressive forms; and, in the competitive area 1 team versus another team was mentioned fewer times than 1 individual versus another individual. Data was analyzed with reference to other variables such as descriptions of sex, age, geography, politics, and economics; and orientations of the authors. The lack of innovative trends in human movement found was related to authors concerns with technology.

Washington State University, Pullman, Washington

(K. Penman)

724. BARTHELS, Katharine Marion. *Three-dimensional kinematic analysis of the hand and hip in the butterfly swimming stroke*. Ph.D. in Physical Education, 1974. 213 p. (M. Adrian)

Male ($N=3$) and female ($N=3$) intercollegiate competitive swimmers performed the dolphin butterfly stroke with and without the kick. The motion of the right hand was recorded simultaneously on front and side view films for the purpose of making a three-dimensional analysis of the underwater hand movements. The motion of a pelvic landmark was also recorded on the side view films and was used to identify the horizontal motion of the body. The cinematographic data were analyzed by computer methods which provided frame by frame displacement and velocity values of the points examined. In addition, the data were displayed graphically by a Calcomp Plotter. Kinematic differences and similarities between male

and female performances and between performances in the kick and no-kick conditions were identified. The relationships of three-dimensional component hand velocities to coincident horizontal body motion in the no-kick condition were identified, and inferences were made regarding the types of force (drag and/or lift) produced by the hand motion. Similar underwater hand and hip displacement patterns were identified for the male and female subjects in both swimming conditions. Horizontal hip velocity increased throughout the underwater portion of the arm stroke and decreased during the arm recovery phase in the no-kick condition. Stroke velocities were greater for the male subjects than they were for the females in both conditions. Component hand and hip velocities were determined within time intervals defined by the motion of the hand in discrete, three-dimensional, directional displacement paths. Variations in component hand velocities occurred from path to path. High lateral hand velocity components occurred in the outswEEP and inswEEP phases of the arm stroke, and high backward and upward hand velocities occurred during the final push phase of the arm stroke. Inferences were made from the hand and hip motion regarding lift and drag forces on the hand for propulsion of the body.

- 725 BURKE, Lee Nelson. *Three-dimensional film analysis of overarm throwing patterns of Down's syndrome children*. Ph.D. in Physical Education, 1973. 96 p. (M. Adrian)

Selected aspects of the overarm throwing patterns of 20 institutionalized Down's syndrome children were studied. The subjects were filmed with 2 cameras, side and back. A weighted means smoothing routine was developed to analyze the data in 3 dimensions. Displacement data of the shoulder, elbow, wrist, and ball were collected from the films by a computerized graphic tablet system. The subjects were assigned to 1 of 4 groups according to their ball velocity at release. The subjects and groups were compared using the following methods: (1) comparing developmental throwing stages, (2) analyzing resultant velocity graphs, (3) analyzing displacement graphs, and (4) statistics. Conclusions: (1) all developmental stages were represented in the subjects; (2) the displacement graphs indicated that the subjects had individualistic displacement patterns; (3) the statistical results between groups for displacement showed linear trends, and significant differences in the x and z direction, but no difference in the y direction; (4) significant correlations were found for female subjects, for ball velocity at release with height, arm, and forearm length; and (5) the weighted means method for smoothing and deriving data was as effective as the maximum likelihood method.

- 726 COLLINS, Tom Annette. *A comparison of recreational participation with running, jumping, and throwing patterns of institutionalized Down's syndrome residents*. M.A. in Recreation, 1974. 48 p. (M. Adrian)

This study was an investigation of the extent to which the recreation program at Lakeland Village, Medical Lake, Washington, served the less motor able as well as the more motor able. The study examined relationships which existed between the Down's syndrome population's recreational participation and age, sex, IQ, running, jumping, throwing, and general physical ability ratings. Subjects ($N = 82$) were filmed while running, jumping, and throwing and these movement patterns were rated. Institutional and recreation staff evaluations and a questionnaire were used to determine each subject's recreational rating. Percentages were computed of the number receiving each recreational participation, running, jumping, throwing, and general physical ability rating. Mean ages and IQs were computed for the groups of subjects receiving each recreational participation rating. Scatter plots were constructed and Pearson Product-Moment Correlations were computed. The study revealed that 71.95% of the subjects were participating in some type of organized active recreation with both sexes participating equally. Less than 25% of the subjects showed mature movement patterns and there were fewer females than males who had mature patterns. There were statistically significant correlations but none which had any great value with respect to decreasing the error of prediction.

- 727 CODERRE, Archie Wayne. *The effect of caffeine on dominant hand steadiness and depth perception*. M.S. in Physical Education, 1973. 38 p. (K. A. Penman)

Subjects ($N = 38$) were Washington State University students. Two groups of equal size ($N = 19$) were formed randomly from the 38 subjects. The exp. group received 3 mg. of citrated caffeine/kg of body weight in capsule form twice/wk for a 3-wk. period. On the alternate days a powdered sugar placebo capsule was administered. The second group was a control group, which received placebo capsules for the 4 wk. of the study. The subjects were tested 5 days/wk on the Lafayette Steadiness Hole Type Tester, and the Lafayette Depth Perception Apparatus. Results were analyzed by using an ANOVA in which the interaction of the variables was incorporated into the error term as part of the error term. The results indicated that there was no statistically significant difference between the exp. caffeine days, and the nonexp. and control group noncaffeinated days ($p > .05$).

728. COOPER, Mark S. *The recreation interests of students enrolled in grades 7 through 12 in the Pullman, Washington School District*. M.A. in Recreation, 1973. 73 p. (K. A. Penman)

The recreation interests of 955 youth in grades 7 through 12 in Pullman, Washington, were determined by use of a Student Interest Checklist which listed popular recreation activities. The data were treated by use of a computer program which ranked each individual activity on the checklist according to the number and percentage of times it was selected. This ranking was carried out for 21 different subgroups of students. The top 9 ranked activities by the youth participating were: (1) weekend dances, (2) watching movies, (3) survival in the out-of-doors, (4) candlemaking, (5) karate, (6) judo, (7) photography, (8) leather crafts, (9) glass crafts. The overall results indicated that the youth desire a formally structured recreation program consisting of a wide range of activities which would be under the direction of guided leadership.

729. FAGERLUND, Ulf G. *The influence of exercise frequency on the retention of physical fitness*. M.S. in Physical Education, 1973. 25 p. (C. W. Saubert)

Male students (N = 21) exercised on bicycle ergometers for 6 wk., 4 day/wk., 30 min/day during the first 4 wk. and 40 min/day during the last 2 wk. The work intensity was successively increased from a workload requiring 60% of each subject's max VO₂ at the beginning and 82% of max VO₂ at the end of training. Each subject's max VO₂ was determined before and after the training period. After training, the subjects were divided into 5 groups that exercised 4, 3, 2, 1, or 0 day/wk., respectively, for another 6-wk. period at work intensities requiring 70% of each subject's max VO₂. A third determination of each subject's max VO₂ was made after this second 6-wk. period. After 6 wk. of training, the total group increased its mean max VO₂ by 522 ml/min or 14.29%. There was no significant change in max VO₂ for the total group during the detraining part of the experiment. The results indicate that exercising 2 to 3 day/wk was sufficient to maintain the max VO₂ level developed in the 6-wk. training program.

730. HANN, Virginia L. *A comparison of experienced modern dancers to nondancers in self-image, body-image, movement concept and kinesthetic arm positioning*. M.S. in Physical Education, 1973. 48 p. (G. Hulac)

The 45 subjects used in the investigation were women from Washington State University. The experienced dance group was composed of 15 students with at least 3 yr. of dance training. A group of 15 women with no dance background was compared to the experienced dance group in Secord and Jourard's self-cathexis and body-cathexis tests, Nelson and Allen's movement concept test, and in a kinesthetic arm positioning test. A third group of subjects was composed of 15 women who participated in a varsity sport at Washington State University. This group of athletes was only given the kinesthetic test. The *t* test was used to determine the difference between the means among the groups in each of the 4 tests administered. The results showed no significant difference between the means of the dancers, nondancers, or athletes in the kinesthetic test, or between the dancers and nondancers on the self-cathexis or body-cathexis tests. However, the dancers did show a significantly more positive movement concept than the nondancers ($p < .05$).

731. HARRUFF, Paul W. *A study of the wear and playing characteristics of eight potential handball and racquetball wall surfaces*. M.S. in Physical Education, 1973. (K. A. Penman)

It was the purpose of this study to determine wear, ball reflection characteristics, and costs of certain potential handball and racquetball wall surfaces. This was determined by impact durability testing, reflection testing, and cost analysis. The study was limited to 8 potential materials which were thought to be suitable as possible handball and racquetball wall surfaces. The test materials evaluated were Slick, VPI 502 S, Benelux, Flapreg, Tartan Flooring, Particle Board, Concrete, and Plaster. Analysis of the data indicated that there were significant differences between the 8 materials. From the data obtained in this investigation, it was found that Tartan, Particle Board, and Concrete in that order were the 3 best materials evaluated in terms of reflection characteristics, impact durability, cost analysis, and safety for the games of handball and racquetball.

732. KREIGHBAUM, Ellen. *The mechanics of the use of the Reuther board during side horse vaulting*. Ph.D. in Physical Education, 1973. 105 p.

Cinematographical and force data were collected while women vaulters performed handspring vaults. Film analysis was used to obtain the center of gravity, approach and takeoff speeds, angles, relative angular velocity and acceleration, and segmental torques about 7 joints. Time-deflection tracings from strain gauges attached to the Reuther board were used to obtain force and total impulse. Each vaulter recorded a double deflection of the board. The force of the second deflection, that which was used for pushoff, was related to the total impulse of the board. The impulse was not related to the vaulter's change in momentum from initial contact to takeoff. A landing position 10 in. behind the leading edge

of the board produced the greatest deflection of the board during pushoff. The vaulters landed generally behind this point. The trunk and foot segments were the first segments to begin accelerated extension. The second deflection occurred while the segments were extending. All segments were decelerating prior to takeoff. The sequence of decelerations was the trunk, thigh, leg, and foot. Predominant muscular torques were those of the hip extensors and ankle plantar flexors while the torques at the knee indicated that the knee flexors were eccentrically controlling the knee extension.

733. LANDA, Jean. *Shoulder muscle activity during selected skills on the uneven parallel bars*. M.S. in Physical Education, 1973. 32 p. (M. Adrian)

The purpose of this study was to investigate the relationship of activity in selected shoulder muscles to the degree of swing on the uneven parallel bars. Muscle activity was measured by EMG using surface electrodes on the following muscles: pectoralis major; anterior, middle, and posterior deltoids; biceps brachii; superior and inferior heads of the trapezius; and latissimus dorsi. A strength test was given to determine muscle activity during maximal contraction. A percentage of maximal contraction for each muscle was then calculated during the swing phase of the following skills: a stationary hang into a squat on the low bar, a jump-catch swing into a squat on the low bar, a cast-off the high bar into a pike around the low bar, and a cast-off the high bar into a back hip circle on the low bar. A videotape of the performance was used to determine the duration and range of the swing phase of each skill. The results indicated that activity of the selected muscles increased with an increase in swing amplitude. The latissimus dorsi muscle was significantly more active during the swing phase of all the performed skills when compared to the other muscles.

734. McCUE, Randolph Reid. *Trends in experimental master's projects in physical education at Washington State University from 1953 to 1973*. 45 p. (K. Penman)

In order to determine trends in exp. master's projects, 6 subproblems were established. These 6 subproblems dealt with: type of research design, method of statistical analysis, use of computers, method of selecting subjects, scale of data, and methods of graphical presentation used. Each master's project completed in physical education at Washington State University from 1953 to 1973 was investigated to determine data concerning the 6 subproblems. Graphs were then constructed for each subproblem to determine trends. Based on the graphs the following conclusion was reached: the sophistication of exp. master's projects in physical education at Washington State University during the period from 1953 to 1973 has increased.

735. MOXLEY, Dale E. *Analysis and comparison of game strategy used by class A and intermediate four-wall handball players during singles and doubles competition*. M.S. in Physical Education, 1973. 57 p. (K. A. Penman)

Using a videotape recorder 16 subproblems were analyzed and significance was obtained for the following 14 subproblems: serves used, serves scoring aces, shots returning serves, shots and hand used, shots scoring, shots used to return ball from back wall, front wall placement of shots, front wall placement of shots scoring, offensive court position when shot was made, defensive court position when shot was made, offensive court position when point or side out scored, defensive court position when point or side out scored, defensive position in center court, and shots from center court. No significance resulted in subproblems investigating pass shots hit to the right or left, or front wall placement of shots returning serves. Based upon the findings of the subproblems in this investigation, the following conclusion was made: There was no significant difference between class A players and intermediate players in relation to strategy; therefore the differences may be attributed to skill variability rather than differences in game strategy.

736. SANDISON, Arthur T. *A comparative study of weight training and Exer-Genie training on the softball throw for distance*. M.S. in Physical Education, 1973. 25 p. (K. A. Penman)

Male freshmen ($N = 29$) from Washington State University were assigned to 1 of 2 testing groups. Each subject performed 3 workouts per week for 6 wk. A performance test was given before and after the 6 wk. of training, testing each subject's ability to throw the softball for distance. After training t ratios were obtained for within group differences; they indicated that the Exer-genie group showed significant gains while the weight training groups did not. ANCOVA showed that neither group had a significantly greater gain than did the other at the .05 level.

University of Wisconsin-La Crosse, La Crosse, Wisconsin

(R. W. Batchelder)

737. BROWN, Norman. *An investigation into the effects of four alternative approaches to the videotaping of dance*. M.S. in Physical Education, 1973. 57 p. (F. Carter)

The 4 approaches were: obtaining a straight-forward record of the dance; making an instructional tape; producing a tape of a dance presentation; demonstrating some of the creative possibilities of the medium. For the purpose of the study, it was agreed only the type and amount of equipment available to schools would be used and the tapes would be made in normal school surroundings. The dance used as the subject for this study was "Rebirth of Wonder." In addition to a solo presentation, the choreographer arranged the dance for 2 and 5 dancers. The study highlighted the essential differences in the 4 approaches to the videotaping of dance. The findings of the study were expressed in the form of a set of guidelines which led the reader from the initial decision making and administrative steps through the various stages to the actual production details. From these guidelines a brief summary was produced in the form of a checklist which outlines the main points to be considered in the making of a videotape.

738. CONRAD, James A. *The rate of occurrence of electrocardiographic T wave inversion of a healthy adult population*. M.S. in Physical Education, 1973. 52 p. (P. K. Wilson)

The investigation was designed to determine the percent of individuals, in a population which was assumed to be healthy, that exhibited T wave abnormality during 1 or more of the following exp. conditions: supine rest; standing rest; sitting posthyperventilation; submax. treadmill exercise; and recovery from submax. treadmill exercise. Male undergraduate students ($N=100$) enrolled in HE and PE classes were utilized as Ss. Each of the Ss was monitored for an EKG recording during all exp. conditions. Percentages were determined for the rate of occurrence of T wave abnormality. A percent for the total number of Ss that exhibited T wave abnormality during 1 or more of the exp. conditions was also calculated. Nine percent of the sample population exhibited T wave abnormality during one or more of the exp. conditions. No Ss were found to exhibit T wave abnormality during supine rest or recovery from submax. treadmill exercise. Seven percent of the sample exhibited T wave abnormality during standing rest and 5% of the sample population had T wave abnormality during sitting posthyperventilation. Two percent had T wave abnormality during submax. treadmill exercise. Eight of the 9 Ss that exhibited T wave during 1 or more of the exp. conditions displayed abnormality in the EKG leads that monitored electrical activity from the inferior portion of the heart.

739. DALLMAN, Glen W. *An analysis of the differences between selected personality traits of successful and unsuccessful coaches in football, wrestling, and basketball*. M.S. in Physical Education, 1973. 52 p. (W. Kaufman)

HS coaches were randomly selected. Two groups were established within each of the 3 sports. The successful group in each was composed of coaches who had achieved a 60% of higher total of victories as a varsity coach. Those with less than 60% victories were placed in the unsuccessful group. The 16 PF test was administered to both groups and results analyzed through the application of the t test of significance for difference between means. It was established that the null hypothesis would be accepted or rejected at the 5% level of confidence. Conclusions were as follows: the unsuccessful basketball coaches were slower to learn and grasp ideas than the successful group. The unsuccessful wrestling coaches were emotionally less stable and more easily upset than the successful group. The successful wrestling coaches were shy, diffident, and more careful in detail than the unsuccessful group. No statistically significant differences existed between successful and unsuccessful football coaches.

740. GILBERTSON, Diane. *The development of intercollegiate athletics for women in Wisconsin*. M.S. in Physical Education, 1973. 66 p. (J. Foss)

This study was to show the growth of athletic competition for college women in the state of Wisconsin from 1900-73. During this time period, women's athletics were influenced by the social pressures and economic conditions that were occurring not only in the state, but on the national level as well. College women attending the Normal Schools experienced the popularity of athletic competition in the early 1900's. When competition for women became unacceptable because of the exploitation of women athletes, college women participated in intramural programs, in which there was no competition with other schools. In the 1960's there was renewed interest for more extensive athletic programs for college women, partly because of the need for highly skilled women athletes to participate in the Olympic games. In 1970 concerned physical educators from various colleges met to discuss the possibility of organizing these schools into a conference. As a result the Wisconsin Women's Intercollegiate Athletic Conference was organized to meet the needs of the expanding athletic programs for women at the collegiate level. Thirteen

schools became members and in 1971 the first athletic conference for college women in Wisconsin became a reality.

741. KLUG, Gary A. *An analysis of biorhythms and their effect on athletic injuries*. M.S. in Physical Education, 1973. 26 p. (W. Floyd)

This study was an attempt to determine whether or not a relationship existed between the date of an athletic injury and a specific position on the biorhythm scale known as a critical day. Eighty of the 6500 Wisconsin athletes who belong to the WIAA accident benefit plan and were injured during the 1970-71 school year served as Ss. In order to determine if a relationship did exist the S's biorhythm cycles for the month of the injury were charted and the date of injury was noted to see if that date corresponded with a critical day. The statistical method χ^2 was then used to determine whether or not a significant relationship existed between the 2 factors. The statistical tools showed that no significant relationship existed between the date of occurrence of an injury and a specific position on the biorhythm scale known as a critical day.

742. MEYER, Gloria. *A comparison of the 600 yard run-walk and 440 yard run as tests of endurance of high school girls*. M.S. in Physical Education, 1973. 30 p. (W. Kaufman)

Seventy-nine fresh., soph., and JHS girls during their assigned PE classes were tested. The Ohio State University Step Test, 600-yd. run-walk, and 440-yd. run were administered to each S during a 4-wk. period. The Pearson Product-Moment Correlation Coefficient was used to determine the r of 0.8346 between the 600-yd. run-walk and the 440-yd. run, -0.5756 between the OSUST and 600-yd. run-walk, and -0.5731 between the OSUST and the 440-yd. run. A small sample correlated data t test was used to determine the significance between the means. Within the limitations of this study, it may be concluded that performance on the 600-yd. run-walk and the 440-yd. run are significantly related. The 600-yd. run-walk and the 440-yd. run test the same thing in this study, but it appears neither test cardiovascular endurance. There is also an inverse relationship between the better performances on the runs and the OSUST.

743. OLSON, Bruce J. *A comparative analysis of six submaximal tests of cardiovascular fitness, as they relate to direct maximal oxygen consumption assessment*. M.S. in Physical Education, 1973. 54 p. (P. J. Wilson)

The investigation was designed to determine the relationship of derived scores on 6 submax. tests of cardiovascular fitness. The ARN (utilizing a bicycle ergometer), the BTT, Coopers 12 Min. Run, the HST, the La Crosse Cardiovascular Index, and the OSUST, to values determined via direct max. VO_2 assessment, utilizing the Taylor, Buskirk and Henschel technique. Male graduate and undergraduate students ($N=20$), between 20 and 30 yr. of age were utilized as Ss. A Pearson Product-Moment r coefficient was computed to determine the degree of relationship between each of the 6 submax. tests of cardiovascular fitness and findings via direct measurement of max. VO_2 . Significance was tested at .05 level. Five of the 6 submax. tests of cardiovascular fitness were found to be significant predictors of max. oxygen consumption, and consequently good predictors of cardiovascular fitness. The HST, the La Crosse Cardiovascular Index and Cooper's 12-min. run were found to exhibit the greatest predictive value. The predictive value of the ARN (utilizing a bicycle ergometer) and the BTT were found to be less valid but still statistically significant. The OSUST showed no significance.

744. SCHULTZ, John R. *A comparison of the standing start with the crouch start in sprinters*. M.S. in Physical Education, 1973. 38 p. (W. Kaufman)

This study was to determine if there was a significant difference between performance times of sprinters using a standing start and sprinters using a crouch start. The Ss selected were members of the track team and members of the track and field class. The Ss were selected on the basis of proficiency in the crouch start. Each S participated in a 2-wk. training session in the mechanics of the standing start. Each was then required to participate in max. starts and sprints using both methods of starting. Each S was timed for 3 trials using each method. The 3 times recorded for each trial were: drive time—the period of time required for a S to react to the starting pistol and clear the starting blocks, 15-yd. acceleration time—the period of time elapsed from the start until the S covered 15 yd., and 30-yd. acceleration time—the period of time elapsed from the start until the S covered 30 yd. A M time for each distance was determined from the 3 trials. The statistical method utilized to treat the data was a t test, to determine the difference between the means. The .05 level of confidence was established as the critical value for the rejection or acceptance of the null hypothesis. Conclusions were: drive times did not differ significantly when using either a crouch start or a standing start; a significant difference was found between 15-yd. acceleration times when using a standing start as compared to a crouch start in favor of the standing start; there

was no significant difference between acceleration times in the 30-yd. dash when the variables were the crouch start and the standing start.

745. ZENTNER, Rod W. *The soft touch basketball training glove as a method to improve free throw accuracy*. M.S. in Physical Education, 1973. 47 p. (C. H. DeVoll)

This investigation was designed to compare and measure the effectiveness of basketball free-throw shooting techniques using local coaches' techniques, the Hank Slider free-throw shooting technique, and the Hank Slider technique with the Soft Touch Basketball Training Glove. The study was conducted with 78 male sophomore, junior, and SHS basketball players. The testing period lasted approximately 3 mo. Each S took a pretest consisting of 200 free-throws. The Ss were then placed into 1 of 3 teams using the random table of numbers. The 3 teams included Team A Control, Team B Technique, and Team C Glove. A 200 free-throw posttest was then administered at the conclusion of the basketball season. Individual season game free-throw percentages were also compared for each of the 3 teams at the conclusion of the study. The statistical method utilized to determine differences in the M scores of the investigated parameters of the pre- and posttest scores was the ANCOVA. An F score of 1.70 was obtained which was not significant at a 5% level of confidence. ANOVA test was utilized to determine the difference in the M scores of the 3 parameters investigated for season game free-throw percentages. An F score of 3.66 was obtained which was significant at the 5% level of confidence. The Scheffé Test revealed there was a significant difference in season game free-throw percentages between Team A Control and Team C Glove. It was concluded that the Hank Slider free-throw shooting technique and the Soft Touch Basketball Training Glove can significantly improve free-throw accuracy under game conditions.

University of Wisconsin, Madison, Wisconsin

(J. G. Wolf)

746. BAHRKE, Michael. *Efficiency of assisted ambulation determined by oxygen consumption measurement*. M.S. in Physical Education, 1973. 35 p. (B. Balke)

Energy requirements for crutch and cane walking were determined by measuring oxygen consumption in 10 normal subjects with normal walking as the control. Four crutch gaits with Lofstrand and Axillary crutches were tested. For all assisted gaits the selected velocity was less than that for normal walking and the energy required greater than for normal walking. Both crutch types required the same amount of energy. A cane and crutches with the 2-point alternating and 3-point partial weight bearing gaits required about 33% more energy than normal walking. Crutches with the swing-through and the 3-point non-weight-bearing gaits required about 78% more energy than normal walking. It is suggested that these energy requirements be considered when prescribing an assistive device.

747. BARD, Chantal. *The effects of object flight variation and subject experience upon speed and accuracy of ball trajectory prediction in three-dimensional space*. Ph.D. in Physical Education, 1973. 182 p. (M. R. Sloan)

College males ($N=30$) participated in this study which was to: (1) assess the effects of systematic variation (Horizontal and vertical angle of projection and perspective of the viewer in relation to the ball flight) and duration of ball flight (.2, .4, .8 sec) upon prediction of landing point of a moving object in three-dimensional space, and (2) establish whether there was a difference between subjects involved in different sport categories (volleyball versus swimming) in their ability to make accurate and quick judgment about the future landing point of a moving object in three-dimensional space. Results showed that the speed of predicting the landing point of a moving object was affected by the duration of the stimulus presentation, the subject location relative to the moving object, and by the vertical and lateral angle of projection. Only location of subject affected significantly the accuracy of predicting the landing in anticipating the landing point. Both groups were equally accurate in their judgment, except when the display time was .2 sec., and then volleyball players were more accurate.

748. BENCISCUITTO, Fred. *A comparison of high school athletic letter winners and non-letter winners at Main Township High School West, Des Plaines, Illinois*. M.S. in Physical Education, 1973. 80 p. (J. G. Wolf)

The study attempted to determine what effect participation in high school athletics had upon general intelligence, verbal achievement, grade point, attendance, and 15 other selected variables. Two groups of 110 male students, athletes, and nonathletes, were compared from graduating classes of 1960 and 1961 from Main Township High School West. Statistical analysis of the data using ANOVA indicated there was a significant difference at the 0.1 level of favor of the athletes in those measurable factors

related to: (1) educational development, (2) school behavior, and (3) in awards received, club membership, and offices held.

749. CLAREMONT, Alan C. *The effects of temperature on metabolism during prolonged exercise*. Ph.D. in Physical Education, 1972. 233 p. (F. J. Nagle)

Eight men performed moderate prolonged exercise on separate occasions in 2 diverse ambient temperatures of 0° and 35°C to determine whether a significant portion of the recovery oxygen consumption can be attributed to elevated body temperature. Throughout exercise and recovery $\dot{V}O_2$, $\dot{V}E$, T muscle, T skin, heart rate, blood lactate, and hematocrit were continuously monitored. Prolonged moderate exercise resulted in sustained elevations of body temperature and a significant increase in recovery oxygen consumption. The hyperthermal effect could account for 33% of the measured recovery oxygen uptake in excess of the volume of oxygen required for repayment of lactic acid and alactic acid components of the oxygen debt.

750. GREEN, Howard J. *Alterations in succinic oxidase, cytochrome and protein in skeletal muscle in response to different forms of running training*. Ph.D. in Physical Education, 1973. 110 p. (F. J. Nagle)

The objective of this study was to investigate the effects of different forms of running training on body and muscle weight, the activities of succinic oxidase and cytochrome oxidase and the mitochondrial protein concentration of the gastrocnemius muscle. Wistar rats ($N=114$) were obtained at the age of 25 days and randomly assigned to 1 of 4 exercise conditions or a control group. The exercise programs, 2 intermittent and 2 continuous, were equated on the basis of work performed. The exp. groups weighed significantly less than the control groups ($p<.05$) after both 25 and 50 training sessions. Exp. group comparisons yielded no significant differences, however there was a trend for the anaerobically stressed groups to gain less weight than the aerobically stressed groups. Mitochondrial protein concentration, succinic oxidase and cytochrome oxidase activities were not significantly different from the controls ($p>.05$) at either 25 or 50 training sessions. On the basis of trends shown, at the end of 25 sessions, generally larger increases were found for the aerobically stressed groups with proportional changes resulting in both enzyme activity and mitochondrial protein concentration. From 25 to 50 training periods, during which no progression was made in the training intensity and duration, further adaptation to the aerobically stressed groups was not evident. For the anaerobically stressed group who successfully completed this phase of the study, indications of additional adaptation was provided by increases in both mitochondrial concentration and enzyme activities.

751. KELSO, J. A. Scott. *The nerve compression block as a determiner of behavioral and neurological parameters*. M.S. in Physical Education, 1973. 115 p. (G. E. Stelmach)

According to Laszlo and her colleagues (1966-72), the nerve compression block provides 1 available method by which researchers can investigate movement control in the absence of kinesthetic information. Implicit to the use of this procedure is the assumption that nerve fibres and receptors subserving the tactile and kinesthetic modalities are eliminated 5 to 10 min. prior to those subserving motor function. A repeated measures design was utilized to investigate the above assumption. Motor fibres in the ulnar and median nerves of the upper preferred limb were tested at systematic intervals throughout the duration of the block in conjunction with normal sensory testing procedures. When subjects ceased to respond to tactile and kinesthetic digital stimulation, they performed 3 tapping trials with vision and audition eliminated. The findings indicated progressive reduction in nerve conduction parameters (motor nerve conduction velocity and amplitude of the muscle action potential) across and below the pneumatic cuff with significant decrements occurring after 15 min. of block duration. In conjunction with the very sparse and inconsistent performance data over 5 block applications, the results indicated that motor impairment was a confounding factor in the use of the nerve block technique. Furthermore, it was considered highly questionable that any hypothetical central control loop such as 'efference copy,' postulated to explain learning in the absence of sensory feedback, could operate under nerve compression block conditions.

752. LaPLANTE, Marilyn. *Evaluation of a selected list of purposes for physical education using a modified Delphi technique*. Ph.D. in Physical Education, 1973. 230 p. (A. E. Jewett)

The content validity of the set of purposes for physical education defined by the Purpose-Process Curriculum Framework were evaluated. A modified Delphi technique (3 questionnaires with interpolated feedback) was used to ascertain selected judges' opinions of the importance of the purpose statements for both present educational development and future educational potential. To determine the validity of the purpose statements, the consensus, both agreement and disagreement, the suggested changes, and additions and deletions, were analyzed. No major changes were made in the purposes. Minor changes were proposed for 12 of the 22 statements. A split plot factorial ANOVA tested the hypotheses of no difference among

the judges, no difference in present and future ratings, and no change from round I to round III. Multidimensional scaling was used to analyze the relationships among the purposes. It was concluded that the purpose statements, defined by the Purpose-Process Curriculum Framework, were valid, that the Delphi technique is an appropriate technique for further curriculum study, and physical educators view purposes in unique ways, not necessarily dependent upon their curricular roles, and view them differently for present and future curriculum development.

753. LEMF, Sally. *Developmental throwing patterns in adult female performers within a selected velocity range*. M.S. in Physical Education, 1973. 129 p. (L. E. Halverson)

The original 6 types as defined by Monica Wild in 1937 were modified by including 4 additional types to provide better differentiation and to include recent research findings. Three film trials were used for each of the 18 female adult subjects who threw with a mean velocity of under 50 ft/sec. Checklists were completed to indicate the type of movement patterns present in each trial. From information recorded on the checklists, all trials were categorized into developmental types—sing weight shift and type of rotation as determining factors. Variability in movement patterns, particularly arm patterns, occurred across trials. Fifty-two of the 54 trials of adult women directly correspond to Monica Wild's types of throwing as identified in children (1937). It was concluded that similar movement patterns are used in the development of throwing skill regardless of age, and that less than complete development of the skill of throwing casts in the performance of some adults.

754. MULLAN, Marie Riche. *Educational taxonomies and student teacher focus on pupil learning behavior*. Ph.D. in Curriculum and Instruction, 1973. 188 p. (M. V. DeVault)

The purpose of this study was to investigate whether student teachers instructed in educational taxonomies would focus observation more on pupil learning behavior as evidenced by: (1) instructional behavior, (2) content focus during supervisory conferences, (3) attitude change, and (4) stated pupil concerns. The posttest only control group design was used, with subjects ($N = 14$) randomly assigned to treatment. The exp. subjects received instruction and assignment time for presenting and applying educational taxonomies, while the control subjects received other content during the same period of time. For perspective 1, data were collected using a systematic observation instrument, and the Mann-Whitney U analysis resulted in significant differences. For perspective 2, data were categorized from audiotapes and analyzed by Mann-Whitney U. No significant differences were found. For perspective 3, a semantic differential was developed and administered, and the ANOVA demonstrated some significant differences. For perspective 4, a questionnaire was revised contrasting pupil and other concerns. The ANOVA revealed no significant differences. Two of the 4 perspectives revealed that inclusion of educational taxonomies as content in a methods course just prior to student teaching did alter the behavior of student teachers.

755. POE, Alison. *A description of the movement characteristics of two year-old children performing the jump and reach*. M.S. in Physical Education, 1973. 94 p. (L. E. Halverson)

The movement characteristics of 22 2-year-old subjects were described as they performed the jump and reach toward an overhead target and to compare the movement characteristics of the 2-year-olds with an adult model provided in the literature. Analysis of the jump including key points was made from film records. Measures of joint angles at the ankle, knee, and hip and of segmental inclinations of the arm, trunk, and head with the vertical were taken and calculations of range of joint motion and velocity of angular motion were made. The results indicated: (1) Most of the 2-year-olds in the sample could perform the jump with reach when an overhead target was provided, (2) As many as 6 patterns of movement characteristics could be identified across the group of 22 subjects, (3) Pattern 6, the most adult-like pattern, was the most frequently observed pattern. Six children exhibited the pattern, (4) 2 year-olds generally assumed a shallower crouch and showed less complete extension at takeoff and at the high point and used less forceful arm action than did older subjects, (5) Individual 2-year-olds resembled adult jumpers in range of joint motion and velocity of movement at 1 or 2 joints, and (6) 2-year-olds, as a group, were more variable in measures of motion than were adults.

756. WATSON, Ronald. *Bone growth and physical activity in young males*. Ph.D. in Physical Education, 1973. 145 p. (W. G. Reddan)

The relationship between bone mineral content and physical activity was studied (photon absorptiometry) in amateur baseball players ($N = 203$) ranging in age from 8 to 19 yr. of age. Two small groups of noncompetitive individuals and baseball players over 19 yr. of age were also studied. Upper and lower arm girth and hand grip strength were also measured. Limb girth and grip strength dominance was correlated with relative and absolute mineral dominance. The dominant humerus had significantly more mineral

and mineral-width within all age groups and the bilateral relationship increased significantly over age. The relationships for mineral, width, and mineral-width for the radius and ulna were inconsistent. It appeared that mineral differences between arms increased from the noncompetitive subjects to the young baseball players to the older baseball subjects. However, the relationship between mineral dominance and the exercise stress factors was not significant. This finding was influenced by the high variability of the criterion measures. Limb girth dominance and grip strength dominance were significantly correlated with absolute mineral dominance and limb girth dominance with relative mineral dominance ($p < .05$), but in all cases weight accounted for most of the variance in the relationships. While humeral mineral dominance was established, its relationship to exercise stress remained to be demonstrated. The bilateral limb girth relationship changed significantly over age groups for upper and lower arm, but only forearm girth was significant within age groups. Grip strength was significant within age groups as was the bilateral relationship over age.

University of Wyoming, Laramie, Wyoming

(J. B. Woods)

757. PHELAN, F. Joseph. *An investigation into the relationship between self-concept and selected physical fitness attributes in seventh and eighth grade boys and girls at University School, Laramie, Wyoming.* M.S., Department of Physical Education, 1973. 71 p. (D. W. Bartz)

The Piers-Harris Self-Concept Scale was used to determine self-concept. The 6 self-concept variables were behavior, intellectual, and school status; physical appearance and attributes; anxiety; popularity; and happiness and satisfaction. The selected physical fitness attributes consisted of 6 items in the AAHPER Youth Fitness Test. The softball throw for distance was eliminated. Comparisons were made in regard to: boys and girls; boys only and girls only. Ten out of 49 possible relationships between the selected self-concept variables and selected physical fitness variables were significant for the combined scores for boys and girls. Stepwise, multiple regression indicated that: the selected physical fitness attributes were poor predictors of self-concept, and the selected self-concept variables were poor predictors of physical fitness.

758. WHITEHEAD, Robert K. *The effect of four feedback treatments on perception and performance during the early learning of a gross motor skill.* Ed.D. in Physical Education, 1973. 195 p. (D. W. Bartz)

Seventh grade girls ($N = 60$) were randomly assigned to 1 of 4 feedback treatment groups: mental practice, conventional feedback, conventional videotape feedback, and videotape feedback. Each student performed a pretest trial and 15 practice trials under 1 of the 4 feedback conditions. Raw scores for trials 1, 5, 10, and 15 were then determined for performance utilizing videotape recording evaluated by a panel of judges. Perception scores for the same trials were determined using a technique of self-analysis developed for this study. Perception and performance scores were then analyzed using ANCOVA, ANOVA, and r techniques. The conventional feedback and the conventional videotape feedback groups increased both in perception and performance over the 15 trials. The r for mean performance and mean perception scores for these same groups indicated that changes in 1 (perception or performance) closely paralleled changes in the other over the 15 trials. This was not true for the mental practice nor the videotape treatment groups.

University of Alberta, Edmonton, Canada

(M. Singh)

759. ASHTON, Thomas E. J. *Analysis of the lower back with isometric, concentric and eccentric training.* Ph.D. in Physical Education, 1973. 154 p. (M. Singh)
760. BATES, Richard A. *An instantaneous velocity recorder: Its construction and evaluation.* Ph.D. in Physical Education, 1973. 81 p. (R. B. J. Macnab)
761. BURGESS, Arthur C. *Physical activity in middle-aged men: Incentives for participation or avoidance.* M.A. in Physical Education, 1973. 187 p. (H. A. Scott)
762. CONSENTINO, Frank. *A history of the concept of professionalism in Canadian sport.* Ph.D. in Physical Education, 1972. 545 p. (R. G. Glassford)

170 UNIVERSITY OF ALBERTA and DALHOUSIE UNIVERSITY

763. DAVEY, Colin P. *Exercion arousal, personality and mental performance*. Ph.D. in Physical Education, 1973. 132 p. (R. B. Alderman)
764. FIELDING, William C. *The effect of prolonged use of anabolic steroids on energy sources of trained and non trained rats*. M.S. in Physical Education, 1973. 125 p. (A. W. Taylor)
765. CARROD, Jo Anne, L. *The effects of exercise and three feeding patterns on the epididymal fat cell of the rat*. M.S. in Physical Education, 1973. 57 p. (A. W. Taylor)
766. INDRAPANA, Nat. *Sport and physical education in Thailand 1932-66*. Ph.D. in Physical Education, 1973. 278 p. (R. G. Glassford)
767. MARSHALL, Robert N. *A force-time analysis of a standing long jump*. M.S. in Physical Education, 1973. 57 p. (G. M. Elliott)
768. MURRAY, Patricia E. *Exercise, anabolic steroids and castration: The effect on energy mobilization*. M.S. in Physical Education, 1973. 138 p. (A. W. Taylor)
769. SCOTT, Harcey A. *Self, coach and team: A theoretical and empirical application of the social interactionist perspective to teenage sports candidacy and participation*. Ph.D. in Physical Education, 1973. 238 p. (R. B. Alderman)
770. WELLSAND, Edmund J. *The effect of movement in the cue dimension on a visual search task*. Ph.D. in Physical Education, 1973. 76 p. (R. B. Wilberg)

Dalhousie University, Halifax, Nova Scotia, Canada

(A. Young)

771. SMITH, Kenneth C. *The modification of a competitive swim coach's behavior*. M.Sc. in Physical Education, 1973. 56 p. (B. S. Rushall)

Exp. procedures were implemented in a practical competitive swimming training situation. A multiple baseline design was used for scientific certification. Self-recording techniques were instituted for rewarding, providing feedback, and providing feedback contingent upon having first rewarded a swimmer. The scope of the repertoire of behavior in these categories was increased by provision of discriminative stimuli on self-recording sheets. Fading schedules were successfully utilized to reduce the subject's reliance on the discriminative stimuli. The provision of rates of occurrence of the target behaviors served as a reinforcing procedure for increasing the frequency of emission of the behaviors. The reinforcing schedule was successfully learned to produce a permanent change in the rate of response of the behaviors. Pre- and postexperimental behavior analyses using a behavioral observation schedule demonstrated the effect of the implemented procedures on the subject's total behavior. Self-recording appears to be a viable method for effecting behavioral changes in swim coaches.

772. UMEIDUM, Simon O. *A procedural model for sport development in Nigeria*. M.Sc. in Physical Education, 1973. 93 p. (B. S. Rushall)

The purpose of this thesis was to investigate and assess the Canadian Game Plan for the 1976 Olympic Games with a view to extracting positive solutions and procedures which were considered to be applicable to and necessary for sport development in Nigeria. The scope of emphases included: (1) increasing national sports participation; (2) sport development; (3) training, education, and employment of coaches; (4) development of national sports training centers; (5) preparation for international games; (6) financing; and (7) total coordination. Canadian specialists in the above areas of concern were interviewed. A directed interview technique with open-ended questions was employed. Interview interactions were recorded on magnetic tape. The investigation resulted in formulating a procedural model for the development of amateur sports in Nigeria.

PERIODICALS REVIEWED

BEST COPY AVAILABLE

- *Acta Medica Scandinavica
- *Acta Morphologica Neerlandico-Scandinavica
- *Acta Paediatrica Scandinavica
- *Acta Physiologica Scandinavica
- *Aerospace Medicine
- *American Corrective Therapy Journal
- *American Family Physician
- *American Heart Journal
- American Journal of Anatomy
- *American Journal of Cardiology
- *American Journal of Clinical Nutrition
- *American Journal of Epidemiology
- American Journal of Human Genetics
- *American Journal of the Medical Sciences
- American Journal of Medicine
- *American Journal of Nursing
- *American Journal of Orthopsychiatry
- *American Journal of Physical Anthropology
- *American Journal of Physical Medicine
- *American Journal of Physiology
- *American Journal of Psychiatry
- *American Journal of Psychology
- *American Journal of Public Health
- *American Review of Respiratory Diseases
- American Sociological Review
- *Anatomical Record
- Annals of Applied Biology
- *Annals of Human Genetics
- Annals of Internal Medicine
- *Archives of Environmental Health
- *Archives of Internal Medicine
- *Archives of Physical Medicine and Rehabilitation
- Archives of Surgery
- Australian Journal of Experimental Biology and Medical Science
- *British Heart Journal
- *British Journal of Nutrition
- *British Journal of Preventive and Social Medicine
- *British Journal of Psychiatry
- *British Journal of Psychology
- *British Medical Bulletin
- *British Medical Journal
- California Journal of Educational Research
- *Canadian Journal of Physiology and Pharmacology
- *Canadian Journal of Psychology
- Canadian Journal of Public Health
- Cancer Research
- Child Development
- *Child Study Journal
- *Circulation
- *Clinical Science
- *Clinical Science and Molecular Medicine
- *Community Mental Health Journal
- *Danish Medical Bulletin
- *Diabetes
- *Educational and Psychological Measurements
- *Ergonomics
- *Experimental Cell Research
- *FDA Consumer (Papers)
- *Federation Proceedings
- Genetic Psychology Monographs
- *Geriatrics
- *Government Reports Announcements
- *Growth
- Health Education Journal
- *Human Biology
- *Human Factors
- *Indian Journal of Medical Research
- *Industrial Medicine and Surgery
- *Industrial Relations
- International Journal of Health Education
- *International Journal of Social Psychiatry
- *International Journal of Sport Sociology
- *International Zeitschrift fur Angewandte Physiologie
- *Japanese Journal of Physiology
- *Johns Hopkins Medical Journal
- Journal of Abnormal Psychology
- Journal of the American College Health Association
- *Journal of the American Medical Association
- Journal of Anatomy
- *Journal of Applied Physiology
- *Journal of Applied Psychology
- *Journal of Biomechanics
- *Journal of Bone and Joint Surgery
- *Journal of Chronic Diseases
- *Journal of Clinical Investigation
- *Journal of Clinical Psychology
- *Journal of Comparative and Physiological Psychology
- *Journal of Educational Psychology
- *Journal of Educational Research
- *Journal of Experimental Biology
- Journal of Experimental Education

*Periodicals marked with an asterisk have research reports listed in Part II—Bibliography of this issue of *Completed Research*.

- Journal of Experimental Medicine
- *Journal of Experimental Psychology
- *Journal of General Psychology
- *Journal of Genetic Psychology
- *Journal of Gerontology
- *Journal of Health and Social Behavior
- Journal of Heredity
- Journal of Home Economics
- *Journal of Laboratory and Clinical Medicine
- *Journal of Leisure Research
- *Journal of Motor Behavior
- *Journal of Nervous and Mental Disease
- *Journal of Neurophysiology
- *Journal of Nutrition
- *Journal of Occupational Medicine
- *Journal of Pediatrics
- *Journal of Personality
- *Journal of Physical Education
- *Journal of Physiology
- *Journal of Psychology
- *Journal of School Health
- *Journal of Social Psychology
- *Journal of Sports Medicine and Physical Fitness
- Journal of Teacher Education
- Journal of Tropical Medicine and Hygiene
- Koelner Zeitschrift für Soziologie und Sozialpsychologie
- *Lancet
- *Medicine and Science in Sports
- Mental Hygiene
- Military Medicine
- Monographs of the Society for Research in Child Development
- National Conference on Social Welfare
- Nation's Schools
- *Nature
- *Nature-New Biology
- *New England Journal of Medicine
- *New York State Journal of Medicine
- Nursing Outlook
- Nursing Research
- Nutrition Abstracts and Reviews
- *Nutrition Reviews
- Pacific Sociological Review
- Parks and Recreation
- *Pediatrics
- *Perceptual and Motor Skills
- Phi Delta Kappan
- Physical Educator
- *Physical Therapy
- Physiological Reviews
- Postgraduate Medicine
- *Practitioner
- *Proceedings of the National College Physical Education Association for Men
- Proceedings of the Society for Experimental Biology and Medicine
- Psychoanalytic Review
- *Psychology in the Schools
- *Psychological Bulletin
- *Psychological Review
- *Psychosomatic Medicine
- *Quarterly Journal of Experimental Physiology and Cognate Medical Sciences
- *Quarterly Journal of Experimental Psychology
- *Quarterly Journal of Studies on Alcohol
- Quarterly Review of Biology
- Quest
- Rehabilitation Record
- Research Bulletin of the NEA
- *Research Quarterly, AAHPER
- Revue Canadienne de Biologie
- *Rheumatology and Rehabilitation
- *Royal Society of Health Journal
- *Scandinavian Journal of Clinical & Laboratory Investigation
- School Health Review
- School Review
- *Science
- Society
- Sociological Review
- *Sociology and Social Research
- *Sociometry
- Southern Medical Journal
- *Surgery
- Swimming Pool Age
- Swimming World
- U.S. Government Research and Development Reports (Abstract)

INSTITUTIONS REPORTING

<i>College and Location</i>	<i>Number</i>
Arkansas	
University of Arkansas, Fayetteville, Arkansas	5
California	
University of California, Berkeley, California	10
University of California, Los Angeles California	12
California State University, Chico, California	3
California State University, Northside, California	15
California State University, Sacramento, California	13
California State University, San Diego, California	5
California State University, San Francisco, California	1
University of Southern California, Los Angeles, California	14
Stanford University, Stanford, California	1
Colorado	
University of Colorado, Boulder, Colorado	4
Florida	
University of Florida, Gainesville, Florida	22
Florida State University, Tallahassee, Florida	12
Georgia	
University of Georgia, Athens, Georgia	5
Idaho	
University of Idaho, Moscow, Idaho	1
Illinois	
Eastern Illinois University, Charleston, Illinois	6
George Williams College, Downers Grove, Illinois	1
University of Illinois, Urbana, Illinois	41
Northern Illinois University, DeKalb, Illinois	2
Southern Illinois University, Carbondale, Illinois	9
Western Illinois University, Macomb, Illinois	13
Indiana	
Ball State University, Muncie, Indiana	3
Indiana State University, Terre Haute, Indiana	1
Indiana University, Bloomington, Indiana	32
Purdue University, Lafayette, Indiana	4

174 INSTITUTIONS REPORTING

Iowa

Drake University, Des Moines, Iowa	4
University of Iowa, Iowa City, Iowa	13

Kansas

Kansas State University, Manhattan, Kansas	11
Wichita State University, Wichita, Kansas	3

Kentucky

University of Kentucky, Lexington, Kentucky	2
---	---

Louisiana

Louisiana State University, Baton Rouge, Louisiana	6
--	---

Maryland

University of Maryland, College Park, Maryland	15
--	----

Massachusetts

Boston University, Boston, Massachusetts	3
Springfield College, Springfield, Massachusetts	35

Michigan

University of Michigan, Ann Arbor, Michigan	1
---	---

Minnesota

Mankato State College, Mankato, Minnesota	5
University of Minnesota, Minneapolis, Minnesota	6

Missouri

Central Missouri State University, Warrensburg, Missouri	3
University of Missouri, Columbus, Missouri	7
Southeast Missouri, Cape Girardeau, Missouri	1

New York

Columbia University, New York, New York	2
New York University, New York, New York	4
St. John's University, Jamaica, New York	1
State University College at Brockport, Brockport, New York	2
State University of New York at Buffalo, Buffalo, New York	1

North Carolina

Appalachian State University, Boone, North Carolina	3
East Carolina University, Greenville, North Carolina	10
University of North Carolina, Chapel Hill, North Carolina	1
University of North Carolina, Greensboro, North Carolina	32

Ohio

Kent State University, Kent, Ohio	12
Ohio State University, Columbus, Ohio	61

Oklahoma

Oklahoma State University, Stillwater, Oklahoma	10
---	----

Oregon

University of Oregon, Eugene, Oregon	23
--------------------------------------	----

Pennsylvania

East Stroudsburg State College, East Stroudsburg, Pennsylvania	5
Pennsylvania State University, University Park, Pennsylvania	41
University of Pittsburgh, Pittsburgh, Pennsylvania	1
Slippery Rock State College, Slippery Rock, Pennsylvania	1
West Chester State College, West Chester, Pennsylvania	2

South Dakota

South Dakota State University, Brookings, South Dakota	7
--	---

Tennessee

George Peabody College for Teachers, Memphis, Tennessee	2
Memphis State University, Memphis, Tennessee	2

Texas

University of Texas, Austin, Texas	8
University of Texas, El Paso, Texas	2
Texas A & M University, College Station, Texas	8

Utah

Brigham Young University, Provo, Utah	68
University of Utah, Salt Lake City, Utah	45

Washington

Central Washington State College	6
University of Washington, Seattle, Washington	12
Washington State University, Pullman, Washington	13

Wisconsin

University of Wisconsin, LaCrosse, Wisconsin	9
University of Wisconsin, Madison, Wisconsin	11

Wyoming

University of Wyoming, Laramie, Wyoming	2
---	---

Canada

University of Alberta, Alberta, Canada	12
Dalhousie University, Nova Scotia, Canada	2

AAHPER RESEARCH PUBLICATIONS

ABSTRACTS OF RESEARCH PAPERS

Abstracts of research and research symposiums presented at AAHPER National Conventions:

1974 (Anaheim)	No. 248-25576
1973 (Minneapolis)	No. 248-25436
1972 (Houston)	No. 248-25306
1971 (Detroit)	No. 248-25134
1970 (Seattle)	No. 248-07824

COMPLETED RESEARCH IN HEALTH, PHYSICAL EDUCATION, AND RECREATION

Annual compilation of research published in over 100 periodicals and abstracts of master's and doctor's theses in these areas:

1974 (Vol. 16)	No. 248-25686
1973 (Vol. 15)	No. 248-25462
1972 (Vol. 14)	No. 248-25328
1971 (Vol. 13)	No. 248-25144
1970 (Vol. 12)	No. 248-25126
1969 (Vol. 11)	No. 248-25008
1968 (Vol. 10)	No. 248-07954
1967 (Vol. 9)	No. 248-07330

DGWS RESEARCH REPORTS II

A series of research reports designed to provide the practitioner with scientific evidence on which to base decisions relating to programs of physical activity and athletics for girls and women. The content is applicable to all levels and can be easily understood by the person without a background in research and statistics. Some of the specific topics covered in this volume are femininity and achievement, female aggression, familial influence, stress conditioning, ability prediction, and iron deficiency. 1973. No. 243-25472

HEALTH EDUCATION COMPLETED RESEARCH

A compilation of research in health education completed during the period 1970 through 1972, representing 312 theses and dissertations from 40 institutions. Part I contains a topical listing, separated into 26 areas; Part II is a listing of the theses and dissertations by institution; Part III consists of abstracts, in alphabetical order by author. 1974. No. 244-25592

KINESIOLOGY IV (1974)

Current studies dealing with various aspects of kinesiology, including such topics as biomechanical analysis of human motion, laboratory exercises in biomechanics for undergraduate students, moment of inertia of the human body, and preaxial and postaxial neuromuscular relationship in the upper extremity: a method of teaching muscle innervation. Contributors include David Kelley, Doris Miller, James Andrews, Donald Hobart, James Hay and Joseph Vorro. 1974. No. 245-25548

KINESIOLOGY III (1973)

A collection of significant papers by leading authorities, compiled by the AAHPER Kinesiology Committee. Some of the topics treated are: inherent movement patterns in man; a laboratory design for undergraduate kinesiology; the center of gravity of the human body; three-dimensional cinematography; and web graphics and the qualitative analysis of movement. 1973. 245-25440

KINESIOLOGY REVIEW 1971

A review of current studies dealing with various aspects of kinesiology, including such topics as computer movement analysis, kinetic energy and movement individuality, study of muscle action, sequential timing of movement patterns, cinematographical analysis, somatotype methodology and kinesiology research. 1971. No. 245-06736

RESEARCH IN DANCE II

An up-to-date listing of research studies, including projects and published articles, in all areas of dance. Supplements the two basic volumes, which are no longer available. 1973. No. 243-25404

RESEARCH IN OUTDOOR EDUCATION

Summaries of 117 doctoral studies in outdoor education completed during the past three decades. Five major categories of research are included: (1) proposals for new program developments, (2) organization and administration, (3) historical analysis, (4) teacher education and (5) evaluation. Each summary consists of a brief statement of the problem, the procedure followed and a resume of results and conclusions. 1973. No. 246-25546

**RESEARCH METHODS IN HEALTH,
PHYSICAL EDUCATION, AND RECREATION**

An up-to-date, authoritative reference and basic textbook written by nationally known research specialists. Presented in clear, direct style and set in easy-to-read type, it deals with all phases of research — from selecting a problem to the final writing of the report. An invaluable tool for the experienced researcher and teacher of graduate courses, as well as the student working on his first project. It is indexed and has extensive bibliographies for each subject treated. Completely revised, 3rd ed. 1973. No. 248-25442

**WHAT RESEARCH TELLS THE COACH
ABOUT DISTANCE RUNNING**

Covers description of the distance runner, training, physiological considerations and environmental influences. 1968. No. 241-07944

WHAT RESEARCH TELLS THE COACH ABOUT FOOTBALL

A selection of the most useful aspects of research literature for the school and college football coach. Covers the physical, social and psychological characteristics of the football athlete, with a special section on football injuries. Chapters are devoted to the speed of movement and the physiological aspects of football. Bibliographic information is provided for each subject treated. 1973. No. 241-25476

WHAT RESEARCH TELLS THE COACH ABOUT SWIMMING

A review of published research covering physiological characteristics, evaluation of performance, etc. 1967. No. 241-07356

WHAT RESEARCH TELLS THE COACH ABOUT WRESTLING

A useful, comprehensive synthesis drawn from more than 150 studies to aid the coach and teacher. 1964. No. 241-06746

DEVELOPMENT OF HUMAN VALUES THROUGH SPORTS

An examination of the values engendered through sports participation as considered at last year's national conference at Springfield (Mass.) College. Positive values are covered, such as sportsmanship, brotherhood, tolerance, and loyalty, as well as negative aspects, such as commercialism, exploitation of athletes and greed for publicity and money. 1974. No. 241-25666

THE WINNING EDGE

How can coaches apply psychology in today's competitive sports world where "win" pressures abound? Answers to this question from various viewpoints are considered in this report on a 1973 conference on sports psychology held at the State University of New York at Buffalo. 1974. No. 245-25678

For current price and order information, write to:

AAHPER Publications Sales
1201 16th St., N.W.
Washington, D.C. 20036